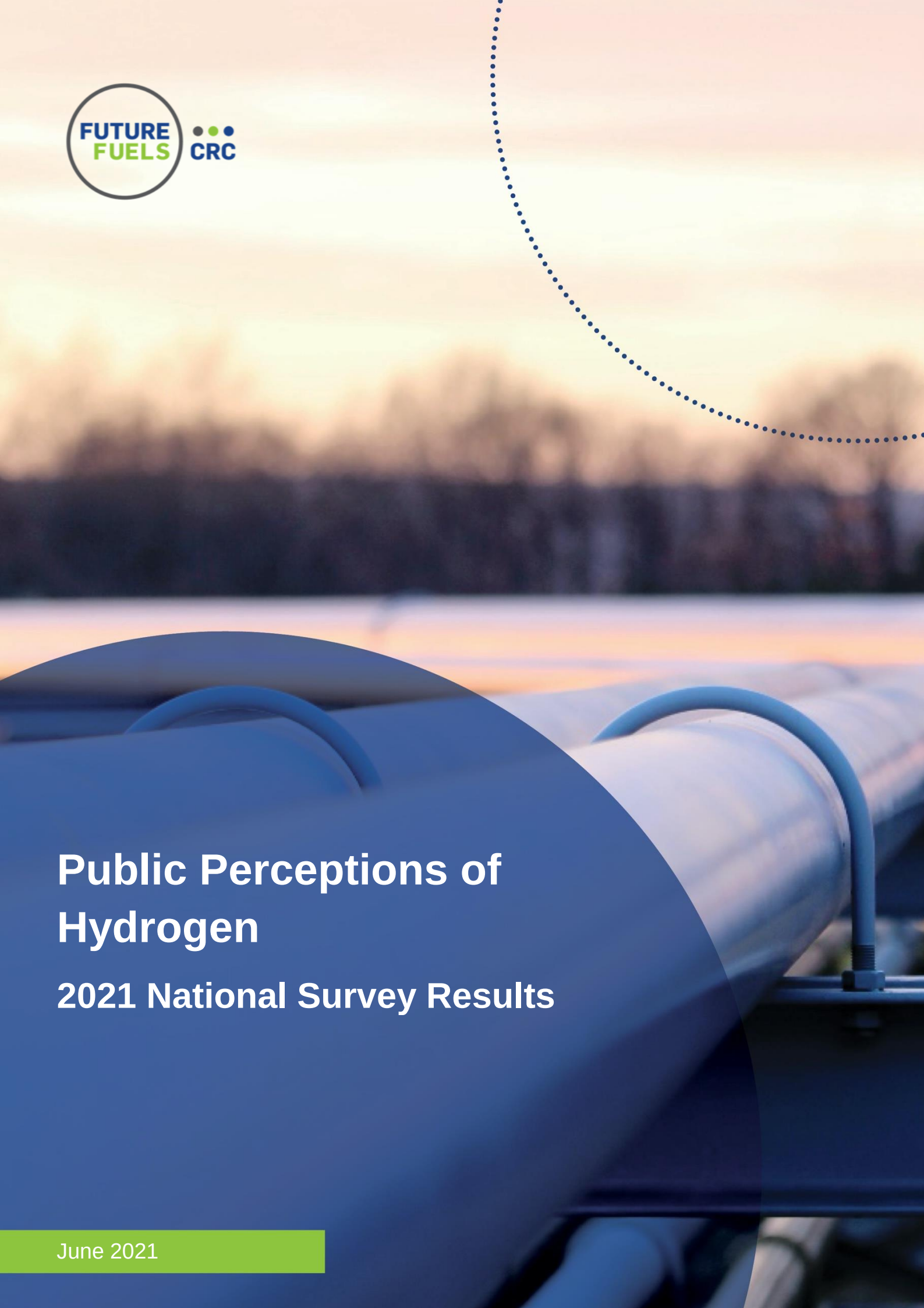

Public Perceptions of Hydrogen

2021 National Survey Results

June 2021

Project number: RP2.1-02

Investigating the Australian public attitudes to hydrogen and future fuels

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Australian Government
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Project Information

Project number	RP2.1-02
Project title	A social license and acceptance of Future Fuels
Research Program	RP2.1-02 Investigating the Australian public attitudes to hydrogen and future fuels
Milestone Report Number	6. (4.3.3) Report on national survey findings
Description	This report details the findings of a national survey to understand public perceptions towards hydrogen. It examines responses to hydrogen “export and future energy considerations” and “domestic use” of hydrogen.
Research Provider	University of Queensland
Project Leader and Team	Prof. Peta Ashworth Dr. Belinda Wade Dr. Kathy Witt Dr. Victoria Martin Dr. Svetla Petrova Mr. Elliot Clarke
Industry Proponent and Advisor Team	James Turnley (Jemena) Kristin Raman (AGIG) Ashley Kerrison Briony O’Shea (GPA Engineering) Ross Jamieson (SIT Gas Controls) Mike Malavos (SA Govt) Lynette Day (SA Govt)
Related Commonwealth Schedule	2.1.1 Reports on methods/techniques for tracking opinion trends leading to community engagement challenges. 2.1.3 Report on attitudes of the Australian society toward the risks and benefits of hydrogen as an energy carrier.
Project start/completion date	Sep 2019/ May 2023
IP Status	Public Domain
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Summary of Report

This report presents the findings of a recent national survey of the Australian public to understand their response to hydrogen as a future energy source. The survey builds on earlier research conducted on behalf of the Australian Renewable Energy Agency (ARENA) in 2018 (Lambert & Ashworth, 2018) as part of developing Australia's National Hydrogen Strategy. The ARENA report was the first national investigation of the Australian public's perceptions towards hydrogen. The ARENA report found that overall, the Australian public were cautiously optimistic about the potential for hydrogen, as long as there were appropriate safety regulations in place.

A market research company was used to recruit the 3020 sample of respondents which approximated the age, gender, and state/territory of residence across Australia. Like the 2018 survey, after answering a range of general questions about their knowledge (objective and subjective), awareness and initial support for hydrogen, participants were then provided with background information about hydrogen including an animated video, additional images and text. The sample was subsequently split into two streams to reduce overall length of the survey. Stream A focused on "export and future energy considerations" (n = 1,513) and Stream B focused on "domestic use" (n = 1,507). Following these questions respondents were randomly allocated into 5 groups (including a control group) to test their response to four messages which included:

- Message 1: Environmental message (transition) - Reducing carbon emissions from the gas network by blending in 5-10% renewable gases (like hydrogen) is an important first step towards Australia's future energy mix.
- Message 2: Economic message (national) - Hydrogen will provide important economic benefits to Australia through export revenue, new industries, and jobs.
- Message 3: Environmental message (100% renewable energy) - Australia can use its abundant renewable energy resources to produce hydrogen, which will give us 100% emissions-free "green" energy.
- Message 4: Economic message (household) - The government is partnering with industry to develop tangible solutions to make hydrogen energy affordable for Australian households.

Support for hydrogen was examined within the survey at three time points. The illustration below (See Figure 1 Support for hydrogen at Time 1, 2 and 3. shows the change in expressed support for hydrogen across Time 1 (at the start of the survey), Time 2 (after the additional information was provided) and Time 3 (after the seeing communication messages). An overall general increase in support was observed suggesting the information provided to respondents within the survey positively influenced their support for hydrogen.

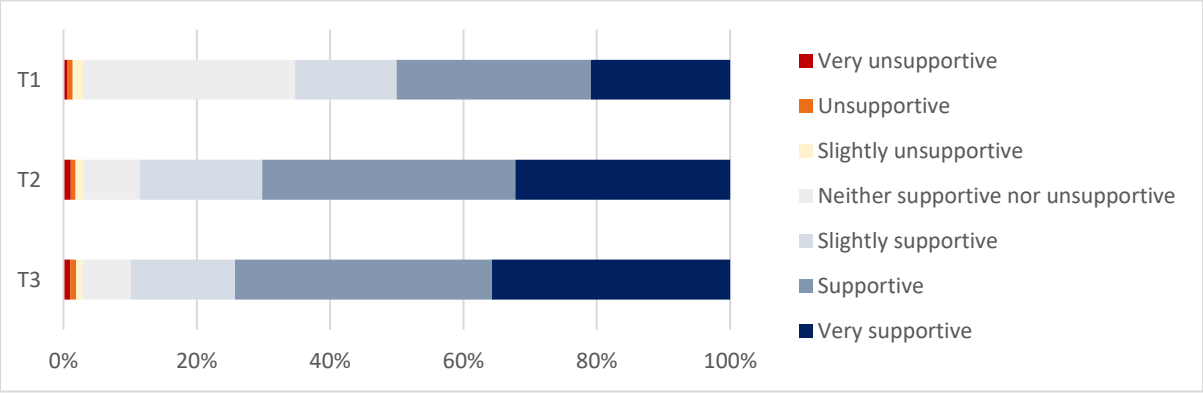

Figure 1 Support for hydrogen at Time 1, 2 and 3.

However, when examining the impact of the messages, only one group recorded a small but statistically significant increase in their level of support. Analyses revealed a small positive effect of Message 3 on the level of support at T3 compared to the control group at T2. The mean scores for the other message groups were not significantly different from the control group at T2. Data shows that Australians are more comfortable with hydrogen produced from renewable energy.

When examining the impacts of political party preferences on support for hydrogen, we found there were no significant differences in the levels of support for hydrogen between those who associate with different major political parties - Liberal/National, Labor and Greens - at any of the 3 time points. However, the respondents who

did not associate themselves with any of the three major parties expressed significantly lower support for hydrogen compared to the major political parties. This finding suggests that the development of a hydrogen industry should continue to invoke bi-partisan support across Australia. This augurs well for ensuring a coordinated approach to developing a hydrogen industry as outlined in the National Hydrogen Strategy when it was launched.

When comparing support for hydrogen with data from the 2018 ARENA survey to evaluate any change in public sentiment, the Time 1 measure from the 2021 National Survey was used for the comparison, as this was in the same position as the same question in the 2018 ARENA survey. There was a small but significant increase in the level of support for hydrogen between the 2018 ARENA survey (M = 4.99, SD = 1.20) and the 2021 National Survey (M = 5.31, SD = 1.25), $t(5803)=10.20$, $p < .01$, Cohen's d = 0.26) as illustrated in Figure 2 Comparison of support for hydrogen between 2021 and 2018.below.

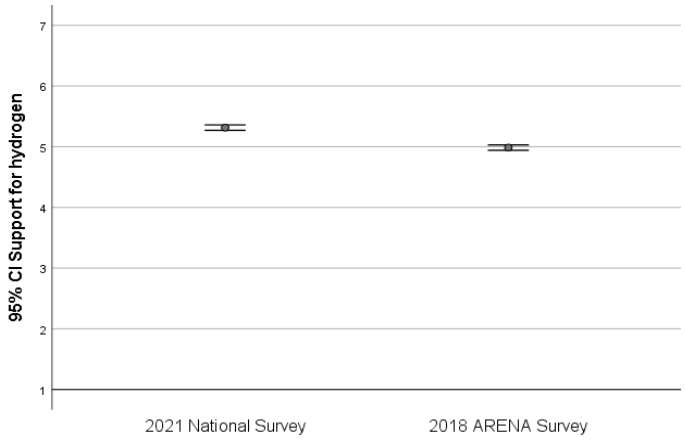

Figure 2 Comparison of support for hydrogen between 2021 and 2018.

Increased support for hydrogen was observed in the responses following the video and provision of additional information about how hydrogen could be produced. Respondents were asked to indicate the extent to which they agree or disagree with a set of statements about hydrogen production processes and hydrogen use in Australia. Their responses mirrored the 2018 ARENA survey albeit with stronger agreement. They were most in agreement that "*hydrogen should be used increasingly for Australia's energy supply"*; that "*using hydrogen will reduce greenhouse gas emissions"; "the use of hydrogen contributes to climate protection"; and "that hydrogen should be produced using renewable energy and electrolysis only".* While still positive, respondents showed least agreement with producing hydrogen from fossil fuels and CCS, and slightly more agreement with it as an interim step. The overall response to producing hydrogen "*with fossil fuels and carbon capture and storage indefinitely*" was almost neutral.

When it came to export considerations, safety in transport and production processes were considered most important. Creating jobs and increasing economic benefits to Australia were also important along with minimising environmental impacts and ensuring a domestic hydrogen supply. These elements are reflected in the frameworks of technology acceptance and ensuring a social licence to operate. As with all new technologies, safety and local benefits will be critical in enhancing the positive development of a large scale hydrogen industry.

MAJOR CONCLUSIONS

While there was a small but significant increase in general support for hydrogen since 2018, only a small percentage of the population reported being confident about their subjective knowledge of hydrogen. However, there is clearly a growing awareness of hydrogen. It is also apparent that general knowledge of hydrogen as an alternative energy source for the home is increasing. Although awareness of specific projects and policies is still relatively low.

The bi-partisan support for hydrogen from the participants' responses also suggests that this should have a positive influence on realising the benefits of a hydrogen industry. Overall, it appears hydrogen is perceived to be a useful, beneficial, and worthwhile technology. Although, there is some variation in the way people feel about hydrogen - reflected in the greater standard deviation scores in response to the attitudinal questions asked.

The fact that the largest change in opinion was between the T1 and T2 support questions suggests that people will form their opinions based on their understanding and knowledge of the technology more than on a simple message frame. The factual information provided through the animated video and images and texts had some effect on general support for hydrogen. This suggest that providing some factual information as the industry develops will be helpful in garnering support. However, whether this is enough to have a long lasting effect remains to be seen. At the same time, in all of the responses to date, projects and the use of hydrogen remain relatively hypothetical. As this changes, it will be important to ensure there is adequate engagement with the range of publics to provide them with relevant information and answer any questions they have.

There was an increase in acceptance of all forms of hydrogen production from 2018, including with CCS, although this was least preferred. Respondents clearly indicated a preference for hydrogen produced from renewable energy and electrolysis. However, these responses do not take into account any reflection on the scale required for ensuring a successful export industry. This includes considerations of competing land and water use, and changes in lifestyles that may be bought about from hosting large scale renewable energy projects. Similarly, while people were accepting of hydrogen for export use, they were more likely to agree to a production facility near them for domestic use rather than for export.

The results demonstrate that respondents are rather in agreement with hydrogen as a potential future energy source for generating Australia's future energy needs. When compared with other energy technologies, "the new renewable" fall third behind solar PV and wind in the technologies provided. When considering developing an export market there are multiple factors that need to be considered in equal amounts. Safety is key, but there is also a need to ensure economic benefits for Australia including jobs while ensuring environmental impacts are minimised.

When it comes to local householder preferences, gas appears to be the preferred cooking fuel and it can be speculated that as a result, hydrogen blends would also seem acceptable. However, when comparing support for hydrogen between gas users and non-gas users, the effects were quite small which suggests that Australians are not completely committed to a gas future. It is likely that safety, costs and overall affordability of choices will influence this final outcome.

IMPLICATIONS AND RECOMMENDATIONS FOR INDUSTRY

- Safety is the number one priority for Australians to ensure the development of a successful hydrogen industry and will require adequate regulations are in place provide confidence.
- Australians are positive toward the economic opportunities it might bring such as jobs and benefits for regional communities.
- Provision of factual information during the survey, did help to strengthen support for those who had previously expressed no opinion, however it did not influence those who were strongly opposed.
- Green hydrogen continues to be the preferred generation source compared with any using CCS.
- Overall there is multi-partisan support for hydrogen which is helpful when considering the industry's development.
- While gas users expressed a stronger support for continued use of gas and transition to hydrogen, the difference was minimal. This will be an important issue to monitor as the continued discussion between all electric and gas transpires.

KEY STATISTICS AND FINDINGS

- When asked "*When you hear the word hydrogen what are the first things that come to mind?*", 46% recalled chemistry or chemicals, 20% power and energy and another 20% water.
- Less than 6% of respondents correctly answered all 5 objective knowledge questions correctly. Questions that received the most correct answers was "*can hydrogen be stored as a liquid*" (60%) and "*is hydrogen flammable in air*" (50%).
- Despite objective knowledge being lower in the 2021 survey than the 2018 results, self-reported subjective knowledge about hydrogen was higher in 2021 for all statements except "*How hydrogen is produced*".
- Almost 40% of respondents reported having heard about hydrogen in the media and 27% reported they had heard about a hydrogen production project in Australia and 21% about a project blending natural gas and hydrogen for domestic use.

- More people in Tasmania (51.0% more than expected), Northern Territory (26.4%), New South Wales (9.7%), South Australia (9.2%), and the Australian Capital Territory (3.9%) had heard about a hydrogen project in Australia.
- Participants became more supportive of hydrogen as they progress through the survey with mean score increasing from 5.31 at Time 1 to 5.94 at Time 3 on a 7 point Likert scale (1=very unsupportive to 7= very supportive).
- As in the 2018 ARENA survey, males tended to be slightly more supportive of hydrogen compared with females, however support grew for both genders as they completed the survey.
- Support for hydrogen was similar across all States and there were no statistically significant differences in the mean State scores at each time point.
- There were no significant differences in the level of support for hydrogen between those who associate with different major major political parties - Liberal/National, Labor and Greens - at any of the 3 time points, however the “other” group expressed significantly lower support for hydrogen than all other groups.
- On average, respondents currently connected to the gas supply (N = 1774) were more supportive of hydrogen than respondents who are not connected. While there were statistically significant differences between the two groups at the two time points, the effect sizes were small which suggests that support for hydrogen is not related to whether households are connected to the current gas supply.
- Compared with data from the 2018 ARENA survey there was a small but significant increase in the level of support for hydrogen between the 2018 ARENA survey (M = 4.99, SD = 1.20) and the 2021 National Survey (M = 5.31, SD = 1.25) (Time 1).
- Most respondents (75.6%) indicated they believe climate change is already happening, which is an increase from the 2018 ARENA survey (70.8%).

1. Introduction

The challenge of mitigating climate change continues with limited progress towards achieving the Paris Agreement targets (UN Emissions Gap Report, 2020, Union of Concerned Scientists, 2020). As a result, governments around the world are seeking technological solutions to limit the associated negative impacts of rising greenhouse gas emissions. Low carbon hydrogen has emerged as one technological solution and is becoming increasingly important for the world's energy transition (Advisian, 2021).

While the use of hydrogen is not new (it has been produced and utilised around the world for many years), hydrogen produced from electrolysis of water using either renewable energy or gas combined with carbon capture and storage, provides low carbon options not previously contemplated (Commonwealth of Australia, 2019). With the cost of renewable energy significantly reducing, combined with an increased likelihood of financial carbon abatement measures being introduced, many countries are turning their efforts towards the development of a global hydrogen market. For some countries (e.g., Japan and Korea), the interest is mainly to import hydrogen as an alternative source of energy, because their own low carbon resources or land availability are limited (Koyama, 2021). However, other countries, such as Saudi Arabia, Germany, and Australia, are eager to develop a hydrogen production and export market.

Clean (carbon emissions-free) hydrogen production currently remains uncompetitive with other sources of energy (Advisian, 2021). However, the potential to decarbonise hydrogen, combined with opportunities to reduce the cost of production through increased scale and demand, means that governments around the world are investing heavily in the development of a hydrogen industry. While this brings new opportunities, the potential introduction of hydrogen either into domestic markets or for export is not without perceived risks or negative reactions (Ashworth & Lambert, 2019). Emergent industries are faced with substantial challenges in managing public perceptions of risk and distrust (Slovic, 1993). Therefore, gaining an early understanding of how the public responds to the potential of hydrogen and its uses, is beneficial to inform both government and industry actions to help ensure a social licence to operate for hydrogen is achieved (Moffat and Zhang, 2014).

This report details the findings of a recent national survey of the Australian public to understand their response to hydrogen as a future energy source, its use in domestic applications as well as considerations for its production and export. The survey builds on earlier research conducted on behalf of the Australian Renewable Energy Agency (ARENA) in 2018 (Lambert & Ashworth, 2018) as part of developing Australia's National Hydrogen Strategy. The ARENA report was the first national investigation of the Australian public's attitudes towards hydrogen. It found that, overall, the Australian public remained cautiously optimistic about the potential of hydrogen if there were appropriate safety regulations in place.

The review of the literature and previous research by the team led to the following research questions

1. What are the factors that influence support for hydrogen?
2. Do individuals respond differently to export versus a domestic industry?
3. Does providing factual information to survey respondents lead to greater support?
4. Do different message frames influence support for hydrogen?
5. Will existing gas users show a stronger preference towards gas and hydrogen?

This report begins with a review of previous research on public perceptions of energy technologies, including hydrogen. The methodology used in the national survey is then detailed, followed by the results, which include explorations of the relationships between respondent characteristics and their support for hydrogen. The report finishes with a discussion of the findings and conclusions.

2. Literature review

There is an extant body of literature that investigates the societal acceptance of, and attitudes towards, energy technologies. This is helpful when considering the factors that may impact support for hydrogen. Most of this work, dates back to the early introduction of nuclear (Pidgeon et al. 2008, de Groot, Steg, Poortinga, 2013) and wind power projects that invoked mixed responses and opposition from potential host communities (Wolsink, 2007; Wustenhagen, Wolskink, Burger, 2007). More recently, there has been increased focus on the public support for low carbon technologies that facilitate climate change mitigation. This includes increased renewable energy generation such as solar photovoltaics (solar PV) and concentrated solar thermal (Pisarski and Ashworth, 2013); wind (Hall, Ashworth, Devine-Wright, 2013); geothermal (Dowd et al. 2011); or carbon capture and storage (CCS) for reducing emissions from coal and gas fired power stations (Fleishman, Bruine de Bruin, Morgan, 2010; Ashworth, Sun, Ferguson et al. 2019).

The Technology Acceptance Framework (TAF) proposed by Huijts and colleagues (2012) helps to identify the range of psychological factors that influence motivations to support or oppose new energy technologies. Many of these factors have been investigated through separate studies such as trust (Terwell et al. 2009, Visschers, Keller, Siegrist et al., 2011), procedural and distributive fairness (Moffat and Zhang, 2014), and perceived risks and benefits (Connor & Siegrist, 2016). Research on socio-psychological factors influencing social acceptance carried out by Gupta et al. (2012) yields similar findings and highlights perceived risk, trust, knowledge, and individual differences to be among the most commonly reported determinants in studies investigating social acceptance of energy technologies (Gupta, Fisher and Frewer, 2012).

Psychological attitudes towards a behaviour are often measured in terms of their “instrumental” attitudes, i.e. overall perceived usefulness or benefits of the behaviour, and their “experiential” attitudes, i.e. what people perceive the experience of the behaviour will be like (Fishbein & Ajzen, 2010). The more positive a person’s attitude, the more likely they will uptake the behaviour in question. Attitudes influence people’s intentions and behaviours, and are an integral component of the TAF (Huijts, Molin, & Steg, 2012).

The TAF (Huijts et al. 2012) also acknowledges the additional factors of knowledge and experience, have an influence on energy technology acceptance. Research has confirmed that contextual considerations, such as what has previously occurred in a host region (Bradbury et al., 2009) and the existence of adequate regulations to manage safety and environmental considerations (Zhang & Moffat, 2015) have been important in building support for projects.

Recognising the interplay between psychological factors and knowledge, prior work by Hobman and Ashworth (2013) also found that pro-environmental beliefs and the provision of factual information also influenced support for various energy sources. They found that those with stronger pro-environmental beliefs were associated with more support for low carbon energy sources (Dunlap, Van Liere, Mertig, & Jones, 2000; Fielding, Russell, Spinks, & Mankad, 2012). Similarly, the provision of factual information changed support ratings for various energy technologies.

There is also a large body of work investigating the effect of message framing and how the resultant frames shape public perceptions. The work of Terwel at al. (2009) on trust in organisations working in CCS is one example. A component of their work investigated the perceived organisational integrity of either an oil and gas company or an environmental non-government organisation by attributing different message frames to each organisation. Depending on what message was attributed to the organisation, that is either an economic or environmental message as the primary motivation for undertaking CCS, influenced respondents’ perceptions of each organisation’s integrity. This, combined with measures of the organisation’s competence, influenced respondents’ overall perceptions of the relative risks and benefits of CCS and ultimately their trust in the technology. Because Australia is in the early stages of a burgeoning hydrogen industry and government and industry are interested in how best to communicate about hydrogen, we experimented with different message frames (as detailed in the methodology section).

Because hydrogen’s introduction has been motivated by its decarbonisation potential, it was also important to understand the public’s perceptions towards climate change. While the majority of scientists warn the world is far beyond avoiding multiple climate related impacts and disasters, conservative Australian governments and their voters, remain steadfast in their support for fossil fuels and related industries – a major contributor of the world’s greenhouse gas emissions (Fielding, Head, Laffan et al. 2012; Ashworth, Sun, Ferguson et al. 2019). This seems

counter to any logical response, particularly given that Australia recently experienced some of the worst droughts, floods and bushfires in its history on the back of Australia's hottest and driest year on record (Commonwealth of Australia, 2020). Understanding the links between political party preference and belief in climate change therefore became integral to this study.

While there is a large body of academic literature on public perceptions and acceptance of hydrogen for transportation, especially in connection with refuelling infrastructure, hydrogen cars, and public transport, there has been very little research investigating public perceptions of hydrogen for use in the home (Lambert and Ashworth 2018; Scott and Powells, 2019), particularly in Australia. How Australians understand, accept, support and use hydrogen in their homes and their tolerance for hydrogen production and export will have a definitive impact on the realisation of hydrogen as a successful industry and future fuel.

In addition, as the various states and territories set targets for renewable energy and lowering their emissions to zero, we have seen a strong debate emerge about the role of gas in a low carbon future. The outcomes of this debate and resultant policy measures may severely impact the ability for hydrogen to be part of Australia's decarbonisation solution, not to mention the potential for costly stranded assets. Given that domestic demand will be integral to achieving the scale required to meet the expected export market we investigated whether existing gas users have a preference for maintaining their gas use. Similarly, whether these users are likely to be more supportive of a hydrogen industry.

3. Methods

3.1. SURVEY DEVELOPMENT

The majority of the questions used in this survey (see Appendix 2) were the same, or very similar to, those used in the 2018 survey conducted by the Project Leader on behalf of the Australian Renewable Energy Agency (ARENA), titled *The Australian public's perception of hydrogen for energy* (Lambert & Ashworth, 2018). Modifications to the ARENA survey questions are documented in Appendix 1.C, and most changes involved either increase in the number of points on the response scales to enable more variability in the responses (Chyung, Roberts, Swanson, & Hankinson, 2017), or minor revisions to the wording for clarity.

Several other topics were introduced to the questionnaire for this research. These included:

- Instrumental and experiential attitudes towards hydrogen energy (Fishbein & Ajzen, 2010)
- Awareness of hydrogen policy and industry developments in Australia (new, from research team) given the rapid pace of change and announcements from across Australian states and territories
- Environmental identity (Fielding et al., 2008) to replace other environmental scales used previously
- Climate change concern (Gardner, Parsons, & Paxton, 2010) to complement the climate change belief question
- Energy source preferences (Jeanneret et al., 2014) for comparison with previous research
- Four message frames about hydrogen based on statements that had appeared in the Australia media
- Reasons for midpoint selection for "Support for hydrogen" questions (adapted from Nadler et al., 2015)

The survey instrument was reviewed by the research team and in consultation with the FFCRC industry partners, after which minor revisions were made to the wording. The online questionnaire was programmed by Q & A Market Research, then tested by the research team for functionality issues after which further programming revisions were made. Where appropriate, the responses to questions were randomised to avoid question order effects. The survey took respondents approximately 25 minutes to complete.

3.1.1. Survey flow

Figure 3 provides an overview of the flow of survey questions and the points at which information was provided to respondents. The first set of questions were presented to all respondents. After that, the sample was split into two groups to answer separate questions on either (1) Export and future energy considerations, or (2) Domestic use. After this point, all respondents continued with the same questions.

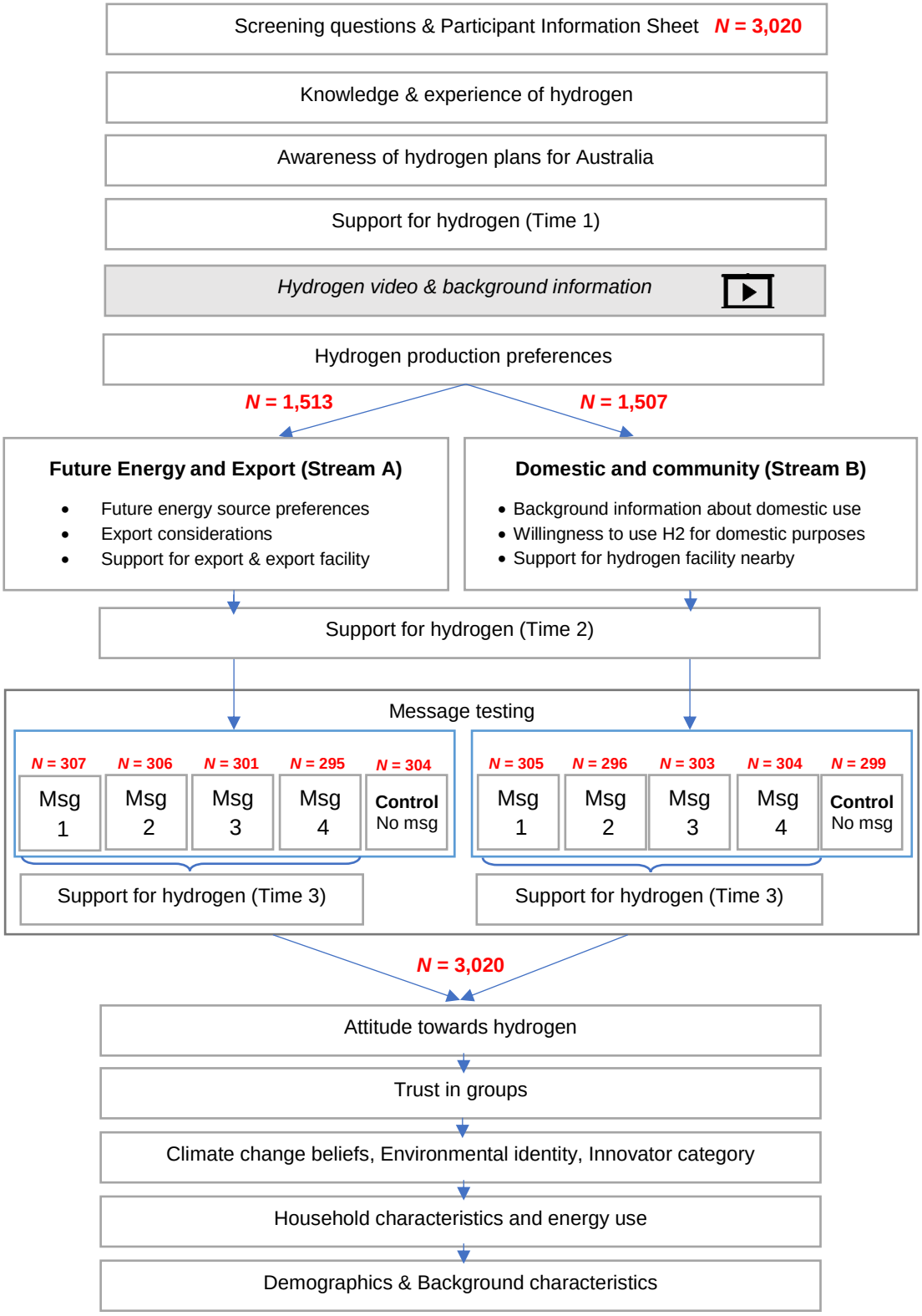

Figure 3. Flow of survey sections

3.1.2. Specific questions

The first section presented screening questions, after which all eligible respondents completed the participant information sheet. They were then asked about their initial perceptions, knowledge and awareness of hydrogen and hydrogen discussions in Australia. After this they were asked about their level of support for hydrogen as a possible solution for energy and environmental challenges. This measurement is a key indicator for this study, so it was measured three times during the survey: (1) at the start, (2) about mid-way after the sections on export and domestic use, and (3) after a section that tested different messages about developing the hydrogen industry in Australia (described below).

Following these general questions, background information about hydrogen and the hydrogen industry was provided. Respondents watched a short (1 minute, 42 seconds) animated video produced by ARENA (https://youtu.be/fFGT2z82tOM "What is renewable 'green' hydrogen gas?"), which explains what hydrogen energy can be used for, how "green" hydrogen can be produced, and the potential for Australia to export hydrogen. This was followed by an image and text that further explained how hydrogen can be produced, including with renewable energy, fossil fuels, and carbon capture and storage. The respondents then went on to answer questions about their agreement with different ways of producing hydrogen.

At this point in the survey, the respondents were split into the two streams to reduce the survey duration. Stream A contained questions about "export and future energy considerations" (n = 1,513) and Stream B focused on "domestic use" (n = 1,507). After these sets of questions, all respondents were presented with the remaining questions. The next section repeated the support for hydrogen question (Time 2), followed by a section that tested four different messages about hydrogen energy. The respondents were randomly allocated into 5 groups (spread across the two earlier streams) to test these four messages and allow for a control group that did not read any message. The four messages were:

- Message 1: Environmental message (transition) - Reducing carbon emissions from the gas network by blending in 5-10% renewable gases (like hydrogen) is an important first step towards Australia's future energy mix.
- Message 2: Economic message (national) - Hydrogen will provide important economic benefits to Australia through export revenue, new industries, and jobs.
- Message 3: Environmental message (100% renewable energy) - Australia can use its abundant renewable energy resources to produce hydrogen, which will give us 100% emissions-free "green" energy.
- Message 4: Economic message (household) - The government is partnering with industry to develop tangible solutions to make hydrogen energy affordable for Australian households.

After reading the message, the overall support for hydrogen question was repeated for the respondents in each of the four message groups (the control group skipped this question).

The sections that followed included questions about attitudes towards using hydrogen for energy in Australia, and trust in particular groups to act in the best interest of the consumer if a hydrogen economy was to be developed in Australia. The remaining sections covered respondent characteristics that were not related to hydrogen such as their climate change beliefs, environmental identity, innovator category, and household and demographic attributes.

3.2. SAMPLING

The national survey was conducted using a panel of participants provided by Q & A Market Research. This approach enabled responses to be collected from a range of people across Australia. Non-probabilistic quota-based sampling was used to select participants based on their age, gender, and state of residence. The quotas were determined using the characteristics of the Australian population from the 2016 Census data.

The market research company reported that 11,089 people started the survey, of which 3,405 did not pass the data screening questions because their quotas were already full, 943 were screened out because they failed internal consistency checks, 3,670 started but did not finish, and 51 were manually removed for failing logic checks. Information on the number of people invited to take the survey is not available due to the recruitment process used by the panel provider, which uses generic invitations for participants to take surveys then allocates specific surveys using dynamic sampling algorithms. This means true response rates are unable to be determined. In total, 3020

fully completed surveys were received after the market research company and the lead author cleaned the data. The data was collected between 29th January and 20th February 2021.

3.3. ANALYSIS

For the purposes of this report, descriptive statistics are presented along with appropriate tests of differences between groups (e.g. ANOVAs, t-tests, chi-square tests), the details for which are provided in the relevant sections below. All analyses were conducted in IBM SPSS Statistics v26.

3.4. RESPONDENT CHARACTERISTICS

The final 3020 respondents, approximated the age, gender, and state of residence characteristics sought by the quota sampling (Table 1). However, when compared to the Australian population (Appendix 1 A, Table 1&2), the sample overrepresented people with higher education (41.0% in this study had a Bachelor degree or higher, compared to 26.7% in the Australian population), and were more likely to have been born in Australia (74.0% in this study compared to 66.7% in the Australian population). Other demographic comparisons have not been assessed.

Table 1. Demographic characteristics of respondents

Characteristic	Frequency (*n*)	Percent (%)	Australian population %
Gender[a]			
Male	1463	48.4	49.3
Female	1543	51.1	50.7
Transgender Female	6	.2	n/a
Transgender Male	4	.1	n/a
Gender Variant/Non-Conforming	4	.1	n/a
TOTAL	**3020**	**100.0**	
State[a]			
NSW	947	31.4	32.0
VIC	755	25.0	25.3
QLD	594	19.7	20.1
SA	254	8.4	7.2
WA	310	10.3	10.6
TAS	71	2.4	2.2
NT	32	1.1	1.0
ACT	57	1.9	1.7
Age Group[b]			
18 – 34 years	899	29.8	33.4
35 – 54 years	1026	34.0	32.8
55+ years	1095	36.3	33.8

	Min	Max	Mean	SD
Age (years)	18	91	47.8	17.4

[a]Source: Australian Bureau of Statistics (2020) SEW data; available from abs.gov.au

[b]Source: Australian Bureau of Statistics 2016 Census data; available from abs.gov.au

4. Results

4.1. INITIAL KNOWLEDGE AND AWARENESS OF HYDROGEN

The first question in the main section of the questionnaire asked respondents, "*When you hear the word hydrogen what are the first things that come to mind?*". A content analysis was used to categorise the responses (Table 2). For many respondents (~46%), the word "hydrogen" makes them think of chemistry or chemicals (or chemical states). Around 20% of respondents said they think of power or energy, and a similar proportion mentioned water. Less than 10% mentioned hydrogen bombs, while 6% referred to the properties of hydrogen (such as it being flammable, explosive, and/or lighter than air). Only 5% indicated they did not know or have any thoughts when they hear the word hydrogen.

Table 2. What people think of when they hear the word hydrogen

Category	Example responses	*n*	% of respondents [a]
Chemical/chemistry/ element/state	*a chemical; atom and elements; first element on the periodic table; science; chemistry class in school*	1373	45.5
Energy/power/fuel(s)	*a fuel; a source of energy; alternative power source*	660	21.9
Water	*water; part of water; emits water*	627	20.8
Bomb/nuclear weapon	*bomb; nuclear weapon; Hiroshima*	281	9.3
Hydrogen properties	*flammable gas; lighter than air; explosive*	180	6.0
Nothing/none/don't know	*don't know; I am not sure; I have no idea*	152	5.0
Air/atmosphere	*fresh air; part of the air we breathe; a compound in our atmosphere*	102	3.4
Balloons	*balloons; gas used to blow up balloons; hot air balloons*	63	2.1
Hindenburg/blimp/ airships/dirigibles/ zeppelin	*Hindenburg disaster; blimp; used in early airships; has been used to fly dirigibles; Zeppelin blimps exploding*	56	1.9
Other uses	*rocket fuel; used to remove sulfur from fuels; used in industry; used for a variety of purposes; cleaning*	44	1.5
Other	*a lot of wind farms; essential for all life; air pollution; innovation; ammonia production; contamination; cost; fracking*	355	11.8

[a] Respondents may have written multiple responses across different categories, making the total >100%

Five questions asked respondents about their objective knowledge of hydrogen (Table 3). Less than 6% of respondents correctly answered all 5 questions. The question that received the highest number of correct responses (60%) asked whether hydrogen can be stored as a liquid. In contrast, less than 20% knew that hydrogen is not available naturally in its pure form. Compared to the 2018 survey, fewer people in the 2021 survey answered each question correctly.

Table 3. Objective knowledge of hydrogen properties

	Yes		No		I do not know		2018 ARENA Survey % correct
	n	%	*n*	%	*n*	%	
Is hydrogen heavier than air at room temperature? [*Correct answer = No*]	610	20.2	931	30.8	1479	49.0	38.0
Is hydrogen available naturally in its pure form? [*Correct answer = No*]	1111	36.8	582	19.3	1327	43.9	21.0
Does hydrogen smell? [*Correct answer = No*]	409	13.5	1358	45.0	1253	41.5	55.9
Is hydrogen flammable in air? [*Correct answer = Yes*]	1505	49.8	386	12.8	1129	37.4	52.8
Can hydrogen be stored as a liquid? [*Correct answer = Yes*]	1816	60.1	209	6.9	995	32.9	60.3

Correct responses to knowledge questions	***n***	**%**
0/5	582	19.3
1/5	548	18.1
2/5	749	24.8
3/5	592	19.6
4/5	375	12.4
5/5	174	5.8

Despite objective knowledge being lower in the 2021 survey than the 2018 results, self-reported subjective knowledge about hydrogen was higher in 2021 for all statements except "*How hydrogen is produced*". In the 2021 survey, there was a slight increase in the number of people who said they had never heard of how hydrogen is produced, and a slight increase in the number of people who said they know "*how hydrogen is produced*" well enough to be able to describe it to a friend (Table 4). Comparing these results, it suggests that while only a small percentage of the population are confident about their knowledge, there is a growing awareness of hydrogen compared to the previous survey, with the exception of knowledge about hydrogen production. In both surveys, respondents were most familiar with hydrogen vehicles.

Table 4. Subjective knowledge of hydrogen production and uses

How much do you know about the following? [a]	**I have never heard of it**		**I have heard of it**		**I know about it and could describe it to a friend**	
	2021 (%)	**2018** (%)	**2021** (%)	**2018** (%)	**2021** (%)	**2018** (%)
How hydrogen is produced	53.4	51.3	37.5	40.0	9.1	8.7
The use of hydrogen fuel cells in vehicles	38.6	40.7	53.1	52.7	8.2	6.5
The use of hydrogen fuel cells in homes	64.4	69.6	30.7	25.9	5.0	4.6
Hydrogen as an energy storage medium for electricity	52.9	63.2	40.1	31.6	7.0	5.2
Hydrogen refuelling stations	55.3	59.4	38.6	35.5	6.2	5.1
Burning hydrogen as a replacement for natural gas	47.4	59.7	45.0	35.3	7.6	5.1

[a]Sample sizes: 2021 *N* = 3,020; 2018 *N* = 2,785

When asked about whether they had heard about more specific hydrogen discussions occurring in Australia, almost 40% reported they had heard about hydrogen in the media (Table 5). This result could explain the higher results for some of the subjective knowledge statements (Table 4). In addition, twenty seven percent (27%) reported they had heard about a hydrogen production project in Australia and almost 21% said they had heard about a blended project. However, the National Hydrogen Strategy was the least well known, with almost three quarters (73%) of respondents indicating they had never heard of the Strategy.

A chi square test (which indicates whether people answer a categorical question differently to the expected distribution) showed there was a significant association between State/Territory and the statement "*I have heard about a hydrogen project in Australia*" ($\chi^2(14) = 24.830$, $p = .036$). This means there were more responses in one of the three categories (yes/no/unsure) than expected. More people in Tasmania (51.0% more than expected), Northern Territory (26.4%), New South Wales (9.7%), South Australia (9.2%), and the Australian Capital Territory (3.9%) had heard about a hydrogen project in Australia (Appendix 1 B, Table 8). There were no significant associations between State and Territories and all remaining statements (See Table 5).

Table 5. Awareness of hydrogen discussions in Australia

There has been discussion about using hydrogen in Australia recently. Please respond to the following statements.	Yes		No		Unsure	
	n	%	*n*	%	*n*	%
I have heard about a project blending natural gas and hydrogen for domestic use	628	20.8	2007	66.5	385	12.7
I have heard about a hydrogen production project in Australia	817	27.1	1808	59.9	395	13.1
I have heard about hydrogen in the media	1171	38.8	1528	50.6	321	10.6
I have heard about the National Hydrogen Strategy	443	14.7	2202	72.9	375	12.4

4.2. SUPPORT FOR HYDROGEN

Support for hydrogen was tested at three time points in the survey: at the beginning (Time 1), before respondents were primed with a communication message (see Methods) about hydrogen (Time 2), and immediately after the message (Time 3). This provided an opportunity to test the impact of the different messages on support for hydrogen. The results suggest that participants were a little more than "slightly supportive" (just above 5 on the 7-point scale) of hydrogen as a possible solution for energy and environmental challenges at Time 1, and that support increased to close to "supportive" (a little under 6 on the 7-point scale at Time 2) as they progressed through the survey (Table 6). Very few were unsupportive (Figure 4). Although the average (mean) response increases slightly again at Time 3, there was only one group for which this was a significant shift (discussed below under "Message effects").

Table 6. Support for hydrogen

Overall, how do you feel about hydrogen as a possible solution for energy and environmental challenges? [a]	Time 1		Time 2		Time 3[b]	
	n	%	*n*	%	*n*	%
Very supportive	631	20.9	971	32.2	864	35.7
Supportive	882	29.2	1149	38.0	932	38.6
Slightly supportive	458	15.2	556	18.4	378	15.6
Neither supportive nor unsupportive	963	31.9	253	8.4	177	7.3
Slightly unsupportive	44	1.5	37	1.2	21	0.9
Unsupportive	24	.8	22	.7	21	0.9
Very unsupportive	18	.6	32	1.1	24	1.0
	Mean	SD	Mean	SD	Mean	SD
Average response [b]	5.31	1.25	5.85	1.14	5.94	1.13

[a] Measured on a 7-point rating scale, where 1 = very unsupportive, 4 = neither supportive nor unsupportive, 7 = very supportive.
[b] Not asked for control group; *n* = 2,417

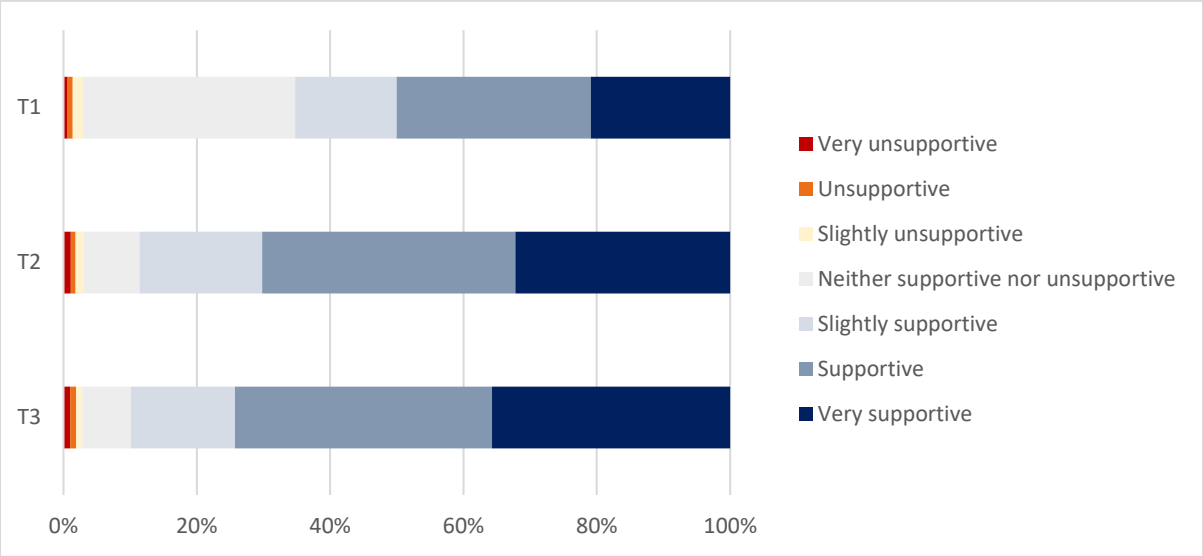

Figure 4. Support for hydrogen at three time points in survey
[a]Control group not included in T3

4.2.1. Support for hydrogen by State

Overall, support for hydrogen was similar across all States. Although there was more variation in the Time 1 measurement early in the survey (Figure 5), there were no statistically significant differences in the mean State and Territory scores at each time point (Table 7).

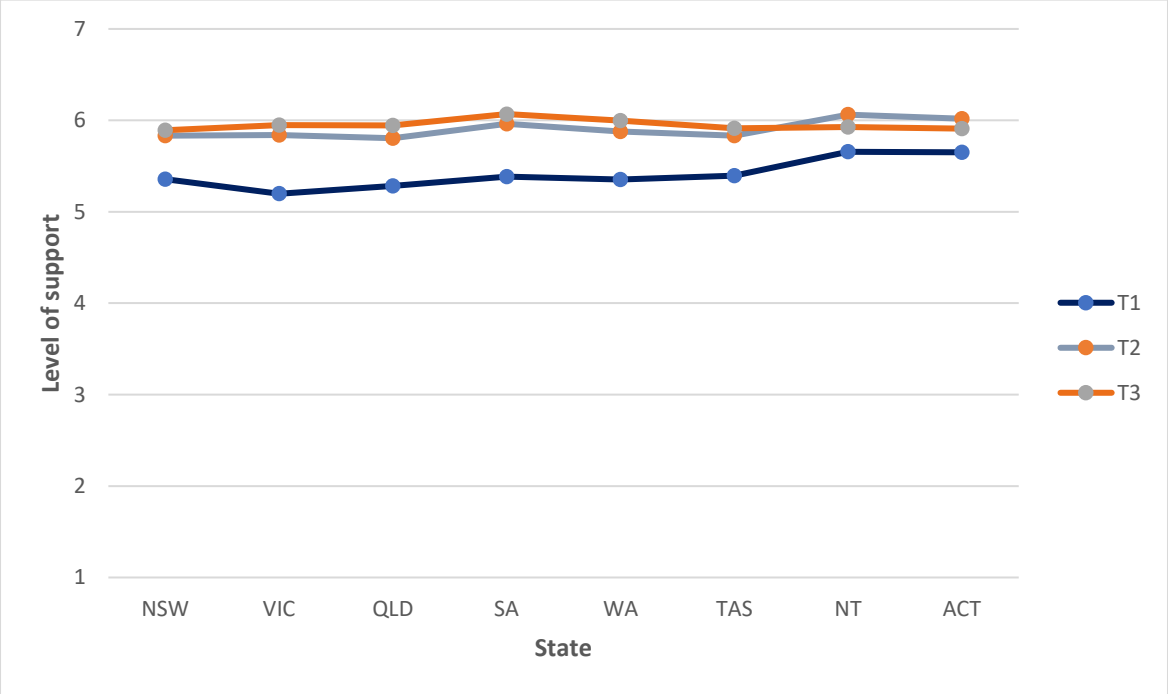

Figure 5. Support for hydrogen by State and Territory over the three time points

Table 7. Support for hydrogen by State and Territory

State	Time 1			Time 2			Time 3[a]		
	n	Mean	SD	*n*	Mean	SD	*n*	Mean	SD
NSW	947	5.36	1.27	947	5.83	1.18	732	5.89	1.15
VIC	755	5.20	1.24	755	5.84	1.13	611	5.95	1.13
QLD	594	5.28	1.27	594	5.80	1.21	481	5.95	1.15
SA	254	5.39	1.20	254	5.96	0.99	203	6.07	0.94
WA	310	5.35	1.26	310	5.88	1.06	261	6.00	1.02
TAS	71	5.39	1.15	71	5.83	1.17	58	5.91	1.25
NT	32	5.66	1.29	32	6.06	1.27	27	5.93	1.47
ACT	57	5.65	1.16	57	6.02	1.08	44	5.91	1.34

[a] Measured on a 7-point rating scale, where 1 = very unsupportive, 4 = neither supportive nor unsupportive, 7 = very supportive.
[b] Not asked for control group; *n* = 2,417

4.2.2. Differences in support for hydrogen by gender and political party preferences

In the Time 1 measure, male respondents expressed stronger support for hydrogen (*M* = 5.65, *SD* = 1.23) than female respondents (*M* = 4.99, *SD* = 1.19; t(3004) = 14.82, p < .01). This was a medium effect size (Cohen's *d* = 0.55). By Time 2, the gap narrowed considerably (the effect size dropped to a small effect; Cohen's *d* = 0.25), although males were still more supportive (*M* = 6.00, *SD* = 1.13) than females (*M* = 5.71, *SD* = 1.15).

To examine differences in support for hydrogen between political party preferences, respondents were split into four groups according to who they would vote for if a federal election were to be held on the next Sunday. The groups were: (1) Liberal/National Party voters (*n* =1,222), (2) Labor voters (*n* =1,010), (3) Greens voters (*n* =376), and (4) "Other" political party voters (*n* = 412). For all three measures of support for hydrogen (Time 1 – Time 3), the "Other" voters expressed significantly lower support for hydrogen than all other groups (Figure 6) and Appendix 1 D, Table 9), although the level of support increased slightly in each subsequent measure. There were no significant differences in the level of support for hydrogen between the first three groups at any of the different times.

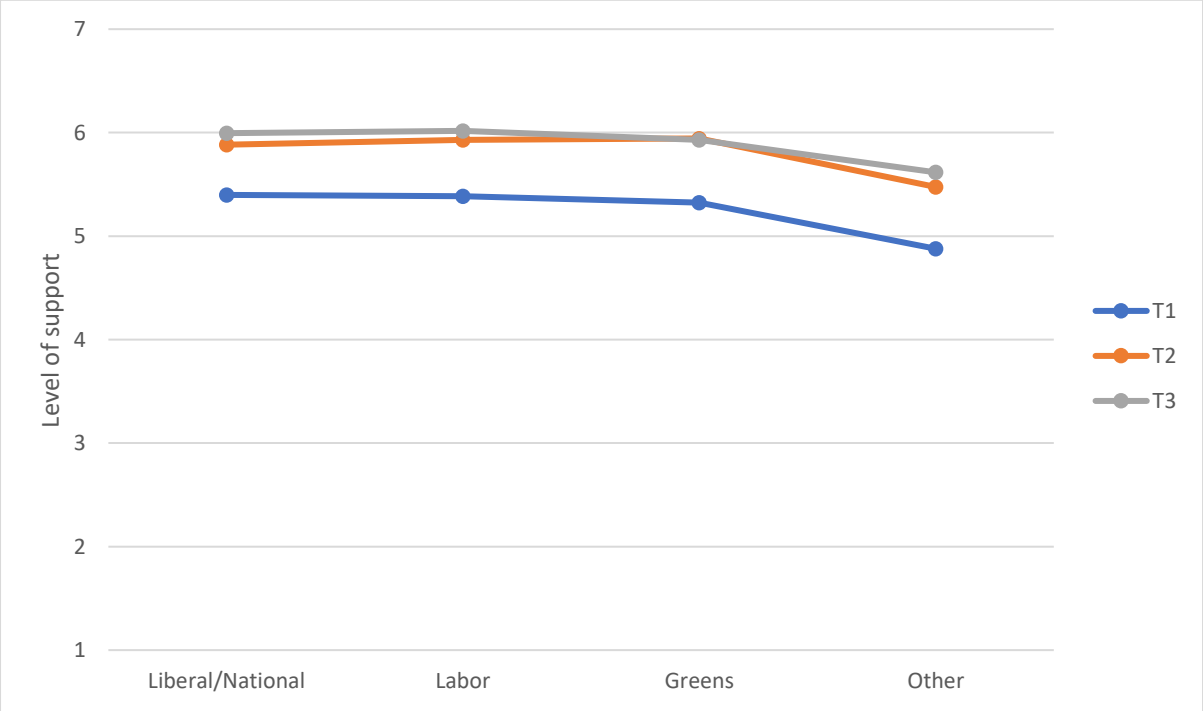

Figure 6. Level of support for hydrogen by political party preference

4.2.3. Relationships between support for hydrogen and knowledge of hydrogen

Initially, in the first measure of support for hydrogen (Time 1), people with a higher score on the objective knowledge questions about hydrogen were more supportive than those who did not answer the majority of knowledge questions correctly (Figure 7; $F(5,3014) = 50.241$, $p < .01$). This was a similar finding to work by Hobman and Ashworth (2013) when investigating public support for a range of energy technologies, and to the findings of the ARENA study (Lambert & Ashworth, 2018).

While some of these effects remained in the second measure of support for hydrogen (Time 2; $F(5,3014) = 10.543$, $p < .01$), respondents who scored lower on the objective knowledge scores increased their support for hydrogen in Time 2. This supports the suggestion that knowledge plays an important role in increasing support. In comparison, people who already know more (i.e. scored highly on the knowledge questions) did not change their support for hydrogen substantially in Time 2. Full details of the ANOVA used to explore this relationship are presented in Appendix 1 D, Table 17.

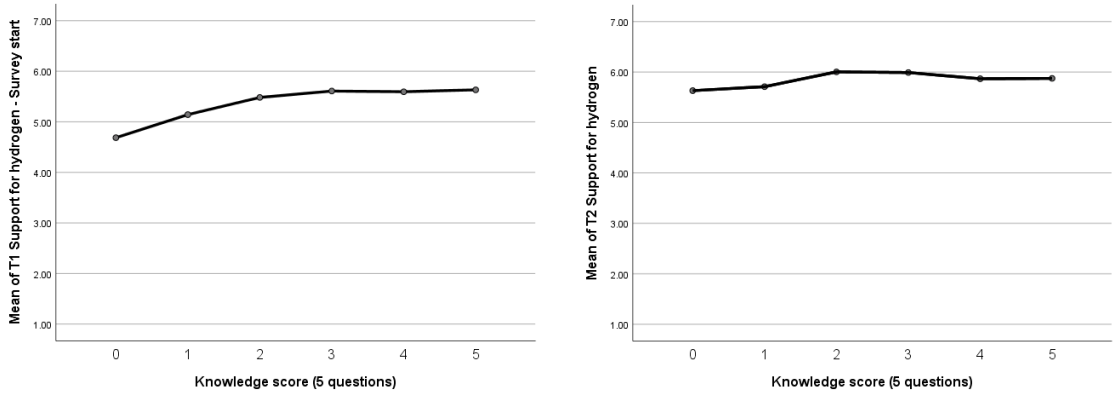

Figure 7. Relationship between objective knowledge score and support for hydrogen

4.2.4. Reasons for selecting the midpoint

Since 45% of the respondents in the 2018 ARENA study selected "neither supportive nor unsupportive" on the *hydrogen support* scale, we added a question to explore the reasons why respondents chose the midpoint. Research by Nadler, Weston, and Voyles (2015) suggests there are many reasons for midpoint selection. In this study, we adapted their work to create a list of six possible reasons. We also included "other" to capture any additional reasons that were not on our list. There is discussion in social scientific literature about the use of midpoints in questions that use response scales. In the case where a large proportion of respondents select the midpoint, it is considered best to increase the response options (e.g. change a 5-point scale to a 7-point scale to improve the sensitivity of the scale; (Chyung et al., 2017)) and to understand how respondents interpret the meaning of the midpoint (Nadler et al., 2015). This approach provides greater insights into the respondents' perceptions of the topic.

The proportion of respondents who selected the midpoint decreased across the three time periods. At Time 1 32% of respondents chose this option. However, by Time 2 the number selecting neither agree nor disagree had dropped to 8%, and to 7% by Time 3. This suggests that participants felt more able to form an opinion as they completed the questionnaire, which is likely to result from the background information they were provided with. However, it is important to consider that some decrease may have resulted from "survey effects", meaning that it is possible some respondents learned that selecting the midpoint results in an additional question and wanted to avoid this when the question was repeated.

The most common reason for the midpoint selection at Time 1 was *I do not know enough about hydrogen to decide* (Table 8). While this remained the case in Time 2 and Time 3, the proportion of respondents choosing *there are pros and cons of hydrogen, which makes me support neutral* increased from 8% in Time 1 to 28% (Time 2) and 29% (Time 3). This also supports the idea that respondents' opinions about hydrogen were developing throughout the survey, as new information was presented to them.

4.2.5. Other reasons for midpoint selection

Open-ended responses to "*Other reasons for selecting the midpoint*" were examined and recoded where appropriate (e.g. "I don't know much about it" was recoded into the category "I do not know enough about hydrogen to decide". The number of open-ended responses were small but included comments about environmental concerns, safety, and distrust of government (Appendix 1 D, Table 10).

Table 8. Reasons for selecting the midpoint

Reason	Time 1		Time 2		Time 3[a]	
	n	%	*n*	%	*n*	%
I do not know enough about hydrogen to decide	710	73.7	110	43.5	68	38.4
I do not have any feelings either way (positive or negative)	72	7.5	24	9.5	18	10.2
There are pros and cons of hydrogen, which makes my support neutral	76	7.9	70	27.7	52	29.4
I did not understand the question	9	0.9	5	2.0	5	2.8
I have no opinion on this issue	75	7.8	27	10.7	11	6.2
I don't care	15	1.6	11	4.3	11	6.2
Other reason	6	0.6	6	2.4	12	6.8
Total number of respondents who selected midpoint	963	100.0	253	100.0	177	100.0
Percent of all respondents in survey (*n* = 3,020)		31.9		8.4		5.9

[a] Not asked for control group

4.2.6. Current gas users' and non-users' support for hydrogen

Since blending hydrogen into natural gas is likely to be an initial step in the development of the hydrogen industry in Australia, we explored differences in the level of support for hydrogen between respondents who have gas (mains) supply and those who do not. On average, respondents who are currently connected to the gas supply (*N* = 1774) were more supportive of hydrogen (Time 1: *M* = 5.36, *SD* = 1.24; Time 2: *M* = 5.89, *SD* = 1.11) than respondents who are not connected (*N* = 1246; Time 1: *M* = 5.24, *SD* = 1.27; Time 2: *M* = 5.79, *SD* = 1.19). While an independent-samples t-test showed there were statistically significant differences between the two groups at the two time points (Figure 8, see Appendix 1 D, Table 13 for t-test results), the effect sizes (.09 and .08, respectively) indicate this is a trivial effect. This suggests that support for hydrogen is not related to whether households are connected to the current gas supply.

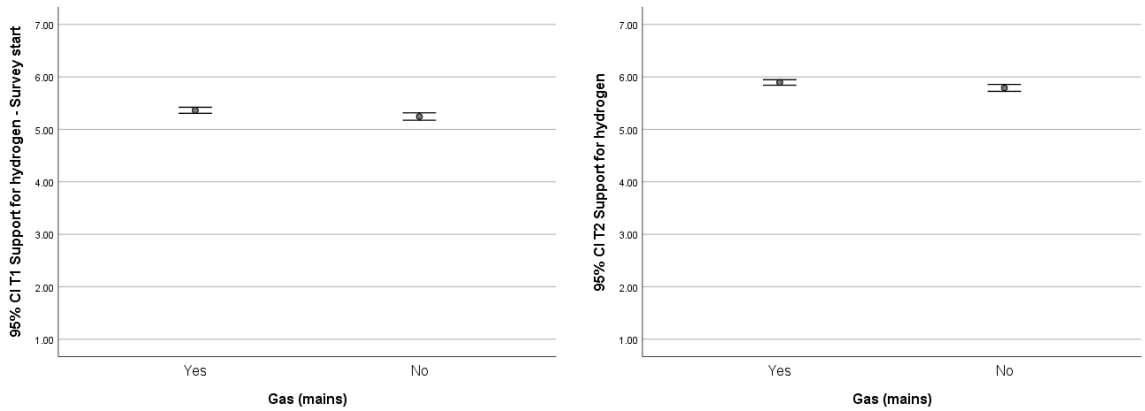

Figure 8. Gas supply users' and non-users' support for hydrogen at T1 (left) and T2 (right)

4.2.7. Comparison with 2018 ARENA data

Support for hydrogen was compared with data from the 2018 ARENA survey to evaluate any change in public sentiment. The Time 1 measure from the 2021 National Survey was used for the comparison, as this was in the same position as the same question in the 2018 ARENA survey (i.e. early in the order of the questions). The response scale for the ARENA data was expanded from a 5-point scale to 7-points to enable the statistical comparison (see Appendix 1.C for the formula used to expand the scale). There was a small but significant increase in the level of support for hydrogen between the 2018 ARENA survey (*M* = 4.99, *SD* = 1.20) and the 2021 National Survey (*M* = 5.31, *SD* = 1.25), $t(5803)=10.20$, $p < .01$, Cohen's *d* = 0.26 (Figure 9).

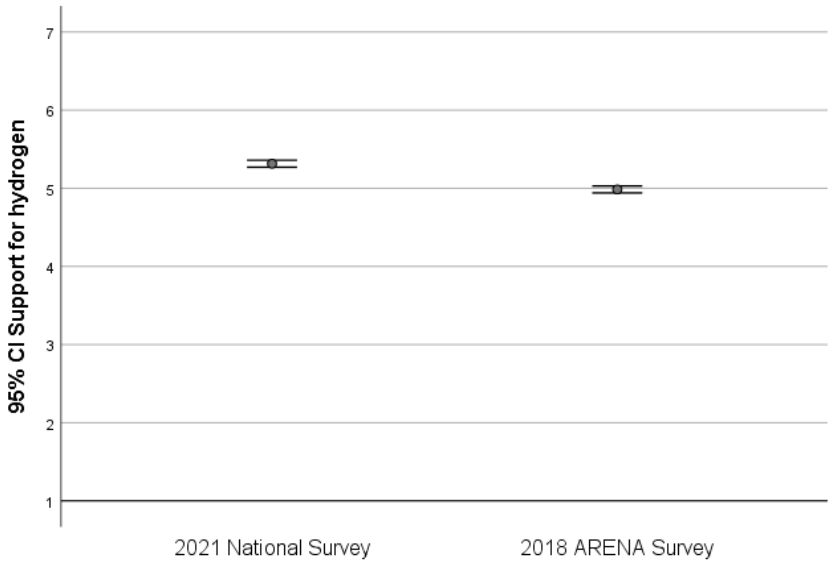

Figure 9. Comparison of support for hydrogen between 2018 and 2021 surveys

4.2.8. Message effects on support for hydrogen

The effect of the four message types on support for hydrogen was examined to explore whether particular messages would resonate better with respondents than others. The four types were labelled: (1) environmental message (transition), (2) economic message (national), (3) environmental message (100% renewable energy), and (4) economic message (household) (Table 9).

Between Time 1 and Time 2, the level of support for hydrogen increased for all message groups (Figure 10). After reading the messages, only one group recorded a small but statistically significant increase in their level of support. A one-way ANOVA and post-hoc comparisons revealed a small positive effect of the 3rd message about green hydrogen on the level of support at T3 compared to the control group at T2 (mean difference = .27; $F(4,3915) = 11.05$, $p < .01$). The mean scores for the other message groups were not significantly different from the control group at T2. This result suggests that messages about emissions-free hydrogen production using renewable energy is likely to resonate best with Australian audiences (at least, those similar to the study sample), however further research on this topic is required to delve deeper into message framing for hydrogen support to confirm this effect.

Table 9. Support for hydrogen by message group

Message group	Time 1		Time 2		Time 3[a]	
	Mean	SD	Mean	SD	Mean	SD
M1: Blending H2 is a first step	5.25	1.27	5.80	1.18	5.76	1.17
M2: Economic benefits	5.33	1.27	5.92	1.11	6.03	1.1
M3: 100% green H2	5.36	1.23	5.87	1.15	6.14	1.1
M4: Govt/industry making hydrogen affordable	5.34	1.24	5.80	1.14	5.85	1.1
Control group (no message)	5.30	1.27	5.87	1.13	n/a	n/a

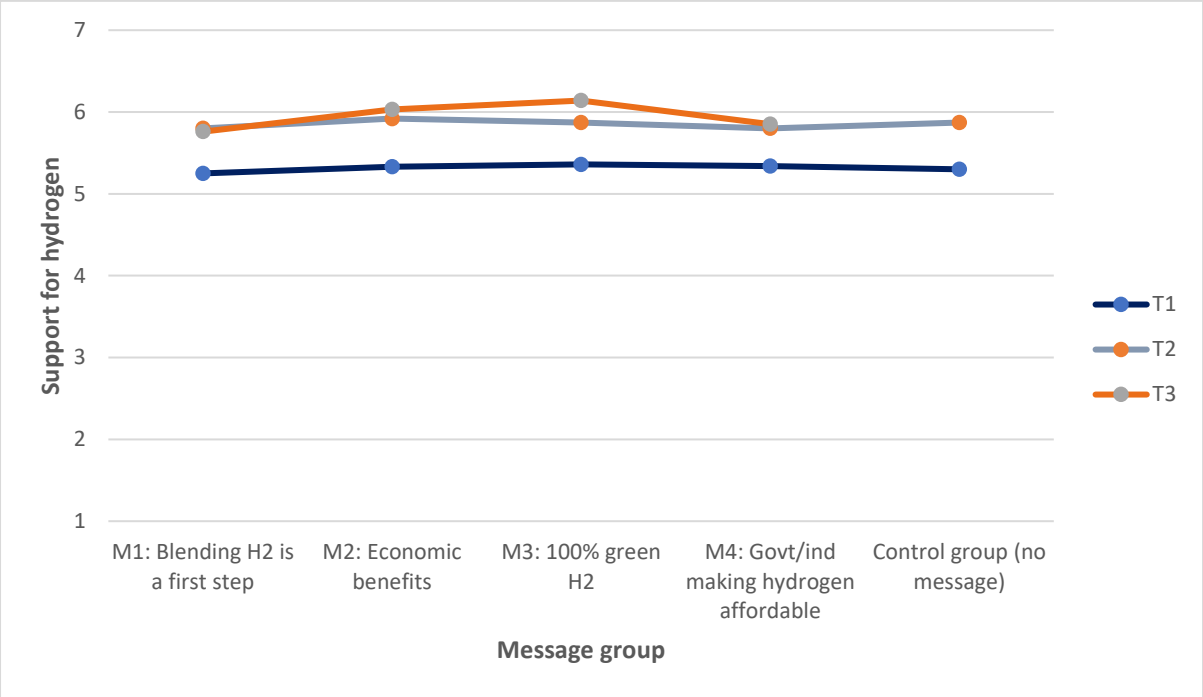

Figure 10. Message effects on support for hydrogen

4.3. PERCEPTIONS OF HYDROGEN PRODUCTION AND USE

After the Time 1 measure of support for hydrogen, all respondents were asked to watch the ARENA video about renewable green hydrogen and read information about how hydrogen is produced using fossil fuels and carbon capture and storage, and renewable electricity (see Methods, and the full survey in Appendix 2). As in the 2018 ARENA survey, respondents were asked to indicate the extent to which they agree or disagree with a set of statements about their perceptions of hydrogen production processes and hydrogen use in Australia (Table 10).

Responses mirrored the 2018 ARENA survey responses albeit with stronger agreement. Respondents were most in agreement that "*hydrogen should be used increasingly for Australia's energy supply*" (average response was between "agree" and "slightly agree"). While still positive, respondents showed least agreement with producing hydrogen from fossil fuels and CCS, and slightly more agreement with it as an interim step. The overall response to producing hydrogen "*with fossil fuels and carbon capture and storage indefinitely*" was almost neutral.

Table 10. Perception of hydrogen production and use

	2021		2018	
Statement	**Mean[a]**	**SD**	**Mean[b]**	**SD**
Hydrogen should be used increasingly for energy supply in Australia	5.75	1.22	5.06[c]*	1.23
Using hydrogen will reduce greenhouse gas emissions	5.74	1.22	-	-
The use of hydrogen contributes to climate protection	5.55	1.30	4.76*	1.28
Hydrogen should be produced using renewable energy and electrolysis only	5.31	1.37	4.94*	1.24
Hydrogen should be produced using fossil fuels with carbon capture and storage as an intermediate step while transitioning to renewables	4.69	1.57	4.27*	1.36
Hydrogen should be produced using fossil fuels with carbon capture and storage indefinitely	4.16	1.77	3.70*	1.52

[a] Measured on a 7-point rating scale, where 1 = strongly disagree, 4 = neither agree nor disagree, 7 = strongly agree; *N* = 3,020.
[b] Scale was expanded to 7 points for this analysis. Original scale used 5 points.
[c] *n* = 906.

4.4. EXPORT & FUTURE ENERGY CONSIDERATIONS

The following section presents results from the first of the two streams of questions, which related to hydrogen export and preferences for future energy sources (*n* = 1,513).

4.4.1. Agreement with potential future energy sources and technologies

To better understand where hydrogen fits in the range of energy generation technologies and sources, respondents were asked "*How strongly do you agree or disagree with the use of the following energy sources and related technologies as potential ways of generating Australia's future energy needs?".* Consistent with earlier surveys conducted by the research team, participants agreed most with the use of renewable energy (solar PV and wind; Table 11). Respondents also agreed with the use of hydrogen, which was rated at a similar level to wind energy.

Table 11. Agreement with potential future energy sources

Energy source/technology	Mean[a]	SD
Solar PV	5.89	1.22
Wind	5.84	1.30
Hydrogen	5.80	1.15
Gas	4.53	1.55
Biomass	4.49	1.19
Gas or coal with carbon capture and storage	4.19	1.64
Nuclear (for power)	3.95	1.98
Oil (e.g. diesel/petrol for transport)	3.80	1.74
Coal	3.58	1.86

[a]Measured on a 7-point rating scale, where 1 = strongly disagree, 4 = neither agree nor disagree, 7 = strongly agree; *n* = 1,513.

In contrast, more respondents disagreed with nuclear, oil, and coal (Figure 11). Biomass received the highest proportion of "neither agree nor disagree", which suggests that respondents do not yet know enough about this particular energy source to form an opinion. These results are similar to previous findings of surveys conducted across Australia and other countries (Ashworth, Sun, Ferguson et al. 2019; Jeanneret, Muriuki, and Ashworth (2014), which also showed respondents agreed with renewables, disagreed with nuclear and coal and were more ambivalent about CCS. It is worth noting that even in 2017 when the last survey was performed, hydrogen was not included in the list of options. This demonstrates that while hydrogen has been used for many years it is only recently, as the low carbon options are emerging, that it has become a focus of social acceptance research.

There were no meaningful correlations between agreement with these energy sources/ technologies and age (all correlations, including statistically significant relationships, were < (.07)). While there are some statistically significant differences between males and females in the extent to which they agree with different energy sources for Australia, these differences are also very small (Appendix 1 E, Table 41).

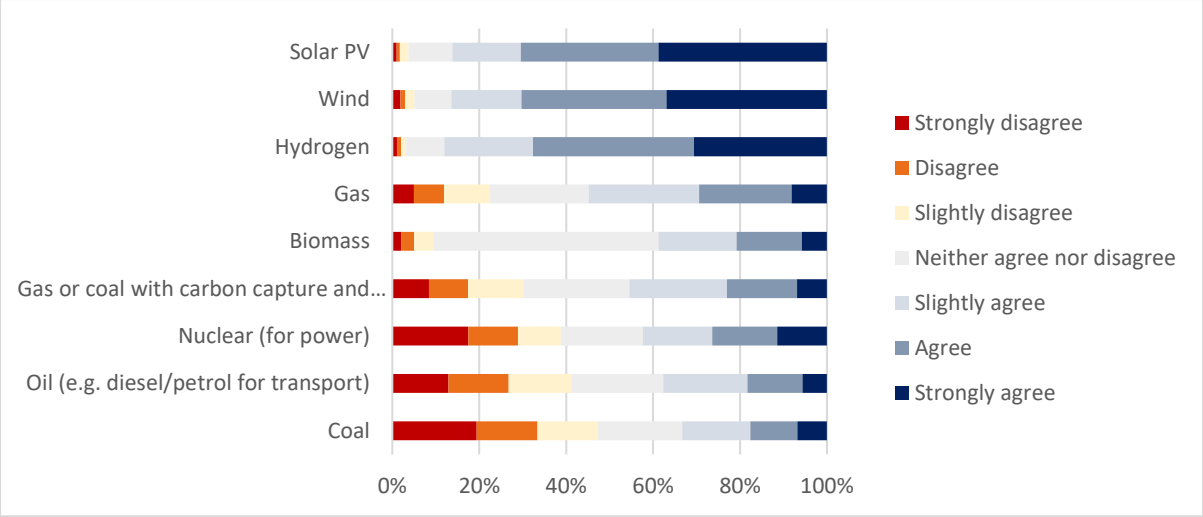

Figure 11. Agreement with potential energy sources and technologies to generate future energy needs

4.4.1.1. Differences between States

Tests for differences between States and the level of agreement with the energy sources and technologies revealed overall there were very few differences (Appendix 1 E. Agreement with potential energy sources by State and Territory). The primary differences were between Western Australian respondents and those from other states on four energy sources. The tests showed that Western Australian respondents:

- Disagreed more strongly with the use of coal than Queensland and New South Wales respondents,
- Disagreed more strongly with the use of nuclear power than New South Wales and South Australian respondents,
- Were more in favour of wind than Queensland residents, and
- Were more in favour of solar PV than NSW residents.

Although these results are statistically significant, the Cohen's *d* effect size results indicate these differences are small. While the statistical analysis used to test these differences is valid for unequal sample sizes, the large differences in the number of respondents in the states (e.g., NSW = 947, NT = 32) means the statistical power of these analyses is reduced, and further research is necessary for these results to be conclusive.

4.4.1.2. Differences between political party preferences

Differences between respondent's voting preferences and their agreement with potential future energy sources was compared. Although agreement with the various energy sources and technologies was similar across the political party preferences (Figure 12), one-way ANOVA tests revealed some statistically significant differences between the party preference groups (See Appendix 1 D, Table 30 - 40, summarised in Table 12 below).

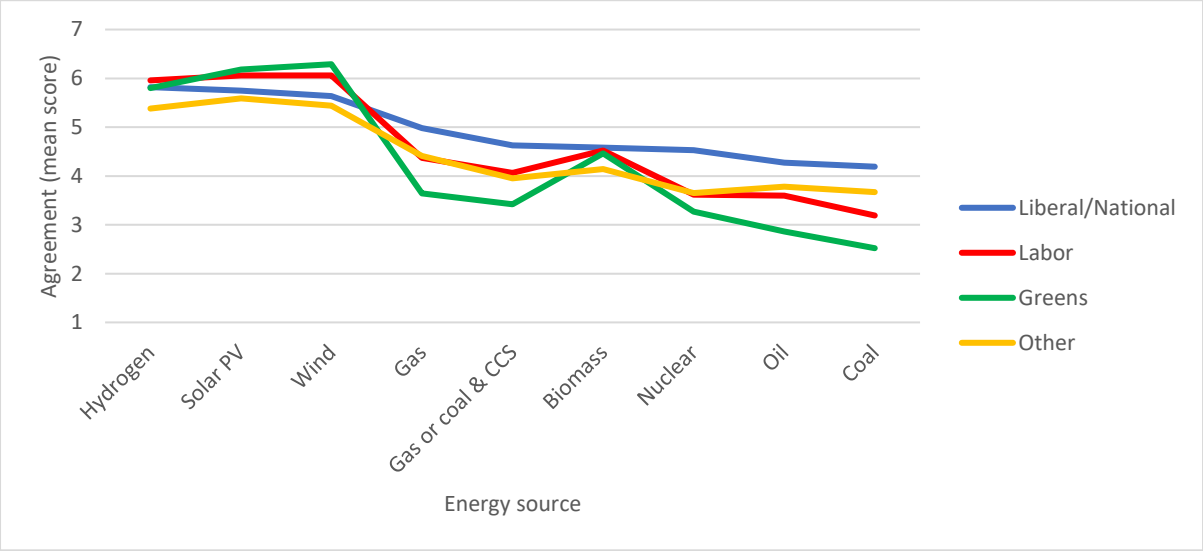

Figure 12. Average (mean) agreement with potential future energy sources by political party preference.
Note: Agreement was measured on a 7-point rating scale, where 1 = strongly disagree, 4 = neither agree nor disagree, 7 = strongly agree; n = 1,513.

For the three main party preference groups (Liberal/National, Labor, or Greens), there were no statistically significant differences in their level of agreement with hydrogen and biomass. For hydrogen, respondents in these three groups expressed slight-moderate agreement with hydrogen (rating 5.80-5.96 on the 7-point scale) and almost neutral/very slight agreement with biomass energy (rating 4.14-4.58 on the 7-point scale). However, respondents with voting preferences in the "Other" categories rated their agreement with both hydrogen and biomass as slightly lower (although still positive) than the other three groups. Since agreement with hydrogen and support for hydrogen (reported earlier) does not split across political party preferences, this suggests that public support for hydrogen is likely to span the main political divides for voters.

For other energy sources and technologies, respondents were more divided across their party preferences. Coal was the only energy source for which all groups (including "Other") differed in their agreement, with Liberal/National voters slightly agreeing, and all others disagreeing to various extents (Green party voters disagreed the most). Differences between all three of the top party preference groups were also seen for gas, gas or coal with carbon capture and storage, and oil.

Table 12. Agreement with potential future energy sources by voting preferences

Statement	Liberal/National		Labor		Greens		Other	
	Mean[a]	SD	Mean[a]	SD	Mean[a]	SD	Mean[a]	SD
Hydrogen	5.82_a	1.09	5.96_a	1.00	5.80_a	1.32	5.38_b	1.40
Coal	4.19_a	1.67	3.19_b	1.83	2.52_c	1.82	3.67_d	1.85
Gas	4.98_a	1.30	4.37_b	1.58	3.64_c	1.67	4.41_b	1.56
Gas or coal with carbon capture and storage	4.63_a	1.46	4.06_b	1.68	3.42_c	1.73	3.95_b	1.61
Wind	5.64_a	1.35	6.06_b	1.10	6.29_b	1.03	5.44_a	1.57
Solar PV	5.75_a	1.20	6.06_b	1.12	6.18_b	1.08	5.59_a	1.48
Oil (e.g. diesel/petrol for transport)	4.27_a	1.59	3.60_b	1.71	2.86_c	1.77	3.78_b	1.78
Nuclear (for power)	4.53_a	1.83	3.62_b	1.95	3.27_b	1.93	3.65_b	2.08
Biomass	4.58_a	1.15	4.52_a	1.20	4.46_a	1.21	4.14_b	1.22

[a] Measured on a 7-point rating scale, where 1 = strongly disagree, 4 = neither agree nor disagree, 7 = strongly agree; *n* = 1,513.

Note: Values in the same row and subtable not sharing the same subscript are significantly different at p< .05 in the two-sided test of equality for column means. Cells with no subscript are not included in the test. Tests assume equal variances and are adjusted for all pairwise comparisons within a row of each innermost subtable using the Bonferroni correction.

4.4.2. Importance of export considerations

Respondents were presented with a list of particular considerations if Australia were to start exporting hydrogen. Of these, safety issues were rated the most important (
Table 13). Although "*minimising the overall use of water in hydrogen production"* was rated the lowest, the overall score (*M* = 3.80, *SD* = 1.04) was only slightly below 4 on the 5-point scale, which represented "very important" on the response scale.

Five of the statements used in the 2021 survey were modified from the 2018 ARENA wording for clarity and consistency in the statements (
Table 13). Compared to the 2018 ARENA results, respondents in the 2021 survey felt all factors were more important than the 2018, except for "*minimising the overall use of water in hydrogen production"* (Figure 13).

Table 13. Importance of export considerations

If Australia was to start exporting hydrogen how important are the following considerations to you?	2021		2018	
	Mean[a]	SD	Mean[a]	SD
Ensuring safety in the way hydrogen is transported[b]	4.46	.74	3.84*	0.95
Ensuring safety of the production process[b]	4.44	.77	4.16*	0.91
Creating new job opportunities[b]	4.31	.82	3.80*	0.94
Increasing economic benefits to Australia	4.27	.84	3.69*	0.95
Minimising the environmental impacts of the production and transport process	4.27	.85	4.09*	0.96
Supporting the development of a local manufacturing industry	4.23	.81	3.82*	0.9
Ensuring availability of a domestic hydrogen supply	4.23	.85	3.82*	0.93
Contributing to the world's emissions reductions	4.19	.94	3.87*	0.99
Creating regional opportunities through the production of hydrogen	4.13	.88	3.77*	0.93
Ensuring Australia is an early mover in the export market[b]	4.10	.92	3.67*	1.01
Retaining the rights of intellectual property for hydrogen production	4.03	.99	3.66*	1.03
Minimising the overall use of water in hydrogen production[b]	3.80	1.04	3.88	0.95

*p < .01
[a]Measured on a 5-point scale where 1 = not at all important, 5 = extremely important; *n* = 1,513.
[b]Wording differed slightly between surveys.

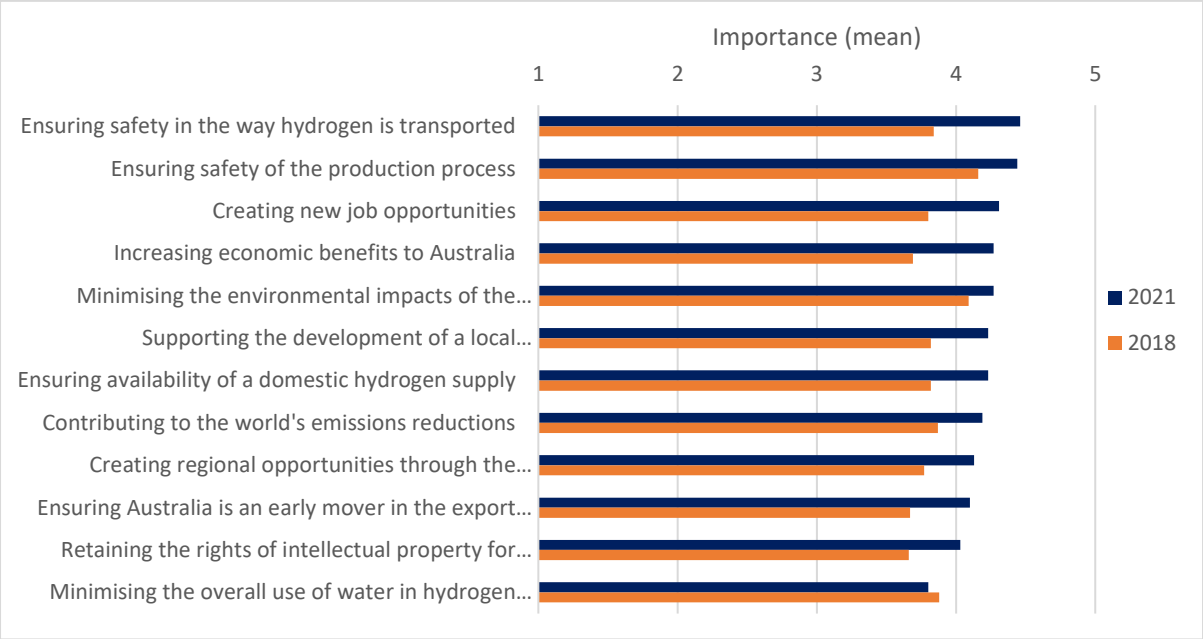

Figure 13. Importance of export considerations

4.4.3. Support for hydrogen export and facilities

Overall, respondents slightly to moderately agreed with Australia exporting hydrogen (*M* = 5.4 on the 7-point scale). However, they were almost neutral about the idea of building an export facility near them (Table 14). Compared to the 2018 ARENA results, the proportion of respondents who supported the idea of Australia exporting hydrogen increased from 72.1% in 2018 to 80.4% in 2021. At the same time, the proportion of respondents opposed to the idea of Australia exporting hydrogen doubled to 10.4%.

In contrast, the proportion of respondents who supported the idea of a hydrogen export facility being built next to them increased from 38.4% in 2018 to 52.4% in 2021, while opposition remained almost the same (22% in 2018 and 22.9% in 2021). This change is largely a result of fewer respondents selecting the midpoint in the scale[1] and suggests a shift toward greater public acceptance of hydrogen export facilities being built in their vicinity.

Comparing the two sets of responses, more people disagreed with the second statement about the idea of a hydrogen export facility being built nearby (Figure 14). An independent-samples t-test showed that males agreed slightly more with the idea of Australia exporting hydrogen (*M* = 5.65, *SD* = 1.65) than females (*M* = 5.43, *SD* = 1.52; t(1504) = 2.688, p = .007), although the effect size statistic indicates this difference is trivial (Cohen's *d* = 0.139). Likewise with the statement about a hydrogen facility being built in their vicinity, males agreed slightly more (*M* = 4.85, *SD* = 1.75) than females (*M* = 4.29, *SD* = 1.64; t(1487.40) = 6.415, p < .001), however the effect size indicates this difference is also small (Cohen's *d* = 0.330).

There was no statistically significant difference between the States in the respondents' ratings of these two variables. There was also no difference in the responses of participants who live in metropolitan or regional areas.

[1] Substantially fewer respondents selected the midpoints for these two questions in the 2021 survey (9.2% compared to 22.9% in 2018 for the first statement, and for the second statement 24.8% selected the midpoint compared to 37.8% in 2018),

Table 14. Support for hydrogen export and facilities

	I support the idea of Australia exporting hydrogen		I support the idea of a hydrogen export facility being built near me	
	n	%	*n*	%
Strongly agree	461	30.5	192	12.7
Agree	539	35.6	348	23.0
Slightly agree	217	14.3	252	16.7
Neither agree nor disagree	139	9.2	375	24.8
Slightly disagree	55	3.6	133	8.8
Disagree	18	1.2	98	6.5
Strongly disagree	84	5.6	115	7.6
	Mean[a]	SD	Mean[a]	SD
Average response	5.54	1.59	4.56	1.72

[a] Measured on a 7-point rating scale, where 1 = strongly disagree, 4 = neither agree nor disagree, 7 = strongly agree; *n* = 1,513.

A one-way ANOVA (Appendix 1.E) showed there are some differences in the level of agreement between political party preference groups for both statements, however these differences are also very minor.

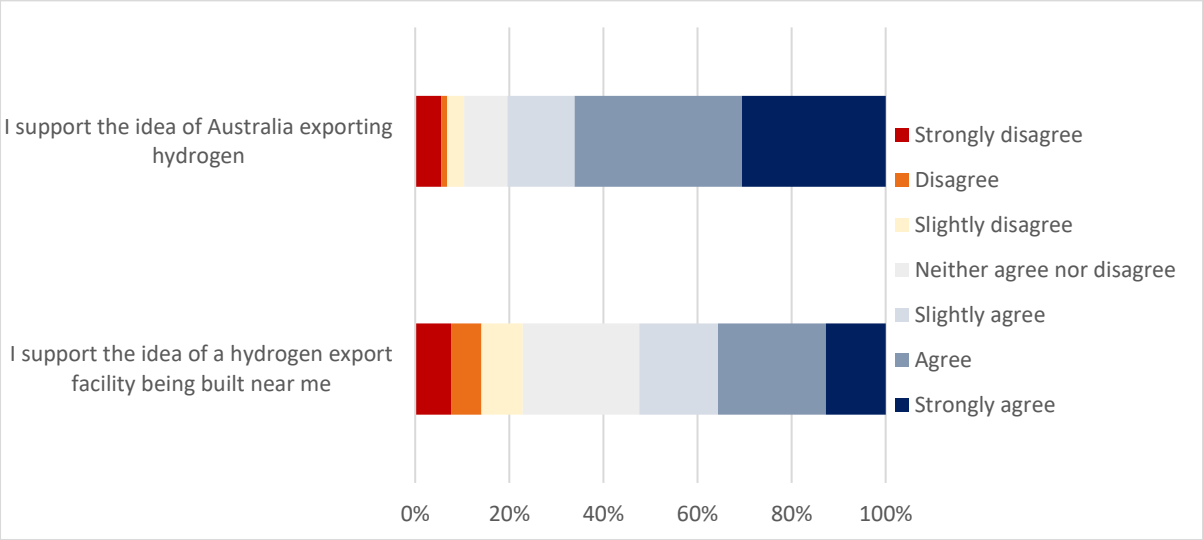

Figure 14. Support for hydrogen export and facilities

4.5. DOMESTIC USE

There were 1,507 respondents in the second stream of questions, which asked about the use and acceptance of hydrogen for domestic purposes. Before starting these questions, respondents were reminded about the information they saw in the video that explained hydrogen could be used in domestic applications. Further information was also provided to describe how domestic use of hydrogen can reduce emissions, and that trials with up to 20% hydrogen blends have already been trialled in Europe (Appendix 1 F. Domestic use considerations).

4.5.1. Willingness to use hydrogen for domestic applications

Overall, respondents indicated they were slightly to moderately willing to use hydrogen for all of the domestic purposes presented, however they were most willing to use hydrogen for hot water heating (Table 15). Five of these six applications were also measured in the 2018 ARENA survey (although the ARENA measure asked respondents about their level of “happiness” to use hydrogen, rather than “willingness”, which was the original language from focus groups). The 2021 results were higher than the 2018 measures, with the largest differences occurring in hot water heating and cooking applications. The results suggest there may have been a small but positive shift in public perceptions of domestic use of hydrogen. However, it will be important to continue monitoring these perceptions as the public receives further information about the challenges of the technological changes needed to deliver hydrogen to people’s homes.

Independent-samples t-tests showed no differences between males and females in their willingness to use hydrogen for space heating, hot water heating, or cooking. There were small differences between the two genders in their willingness to use hydrogen for the remaining three applications, with males slightly more willing than females (Appendix 1 F. Willingness to use hydrogen for domestic applications by gender).

Table 15. Willingness to use hydrogen for domestic applications

If hydrogen were available today, how willing would you be to use it in your home for the following uses?	2021		2018[c]	
	Mean[a]	SD	Mean[b]	SD
Hot water heating	5.71	1.42	5.07*	1.47
Cooking	5.57	1.47	4.90*	1.28
On-site electricity generation	5.53	1.44	5.03*	1.22
Space heating	5.45	1.47	4.91*	1.22
Using natural gas that contains some hydrogen (i.e. a blend)	5.37	1.47	5.04*	1.16
For driving hydrogen fuel cell electric vehicles	5.34	1.58	-	-

*p < .01
[a] Measured on a 7-point scale where 1 = very unwilling, 4 = neither willing nor unwilling, 7 = very willing; *n* = 1,507
[b] Scale was expanded to 7 points for this analysis. Original scale used 5 points.
[c] *n* = 906.

4.5.2. Importance of factors related to domestic use of hydrogen

As in the ARENA survey, *safety* was rated as the most important factor in determining people's willingness to use hydrogen in their homes (Table 16). Unlike many of the questions in the survey, this question used a 5-point scale, where 5 = "extremely important". While some of the factors changed in their order of importance between the two surveys, all factors (other than safety) received scores between "somewhat important" (3) and a little higher than "very important" (4).

Compared to the 2018 survey, there was no change in the importance of *health benefits*, *odour for detecting leaks*, or *proven demonstration projects*. The factors that increased in importance in the 2021 survey were *safety, the cost of hydrogen, the cost to modify appliances, no greenhouse gas emissions,* and *the level of inconvenience to change over*. In contrast, the importance of *being able to choose between gas or electricity for cooking* and *flame colour/visibility* decreased in the 2021 survey. There were also some differences between males and females in their ratings of importance of these factors (Appendix 1 D, Figure 5). It is important to note that, although statistically significant, most of these changes in scores between surveys and between genders represent relatively small shifts.

Table 16. Importance of factors in determining willingness to use hydrogen in the home

How important are the following factors in determining your willingness to use hydrogen in your home?	2021		2018	
	Mean[a]	SD	Mean[b]	SD
Safety	4.50	.83	4.42*	0.819
Reliability of energy supply	4.27	.87	-	-
Health benefits (no carbon monoxide emissions)	4.21	.94	4.17	0.864
The cost of hydrogen to fuel your home	4.18	.91	3.88**	0.879
Odour for detecting leaks	4.08	1.01	4.04	0.948
The cost to modify appliances	4.02	.96	3.67**	0.95
No greenhouse gas emissions	3.98	1.05	3.89*	1.022
Proven demonstration projects	3.94	.98	3.89	0.918
The level of inconvenience to change over from current systems and appliances	3.64	1.08	3.34**	1.05
Being able to choose between gas or electricity for cooking	3.56	1.17	3.67*	1.02
Flame colour/visibility	3.42	1.24	3.53*	1.127

*p < .05, **p < .01
[a] Measured on a 5-point scale where 1 = not at all important, 5 = extremely important; *n* = 1,507
[b] *n* = 906

4.5.3. Support for domestic hydrogen facility

Respondents indicated they "slightly agree" with the idea of a hydrogen facility being built near them to provide hydrogen for domestic use (i.e. non-export) (Table 17). The result was slightly higher than their agreement with a hydrogen export facility being built near them (Table 14). This question was not asked in the 2018 ARENA survey.

Table 17. Support for domestic hydrogen facility being built near them

I support the idea of a hydrogen facility being built near me to provide hydrogen for domestic use (i.e. households, transport, industry)	*n*	%
Strongly agree	276	18.3
Agree	432	28.7
Slightly agree	250	16.6
Neither agree nor disagree	331	22.0
Slightly disagree	80	5.3
Disagree	73	4.8
Strongly disagree	65	4.3
	Mean[a]	**SD**
Average response	5.01	1.61

[a] Measured on a 7-point rating scale, where 1 = strongly disagree, 4 = neither agree nor disagree, 7 = strongly agree; *n* = 1,513.

4.6. ATTITUDES TOWARDS HYDROGEN

This question used a bipolar, semantic differential scale to measure attitudes towards hydrogen, which presented positive words on one side (the most positive score = +3), and negative words with the opposite meaning on the other side of the scale (-3 being the most negative). For example, respondents rated whether they thought using hydrogen for energy in Australia would be "very useful" (+3) or "very useless" (-3), or somewhere in between (including 0).

Overall, respondents' instrumental and experiential attitudes towards using hydrogen for energy in Australia are positive (Table 18). Instrumental attitudes are more favourable (approximately +2) than experiential attitudes (approximately +1.5), which suggests that respondents see that hydrogen may be a good thing for Australia but as yet, they do not have enough experience of hydrogen to form strongly enthusiastic attitudes towards it.

Table 18. Attitudes towards hydrogen

Overall, do you think using hydrogen for energy in Australia would be:	Mean[a]	SD
Instrumental attitude		
Very useful - Very useless	2.10	1.08
Very beneficial - Very harmful	2.08	1.09
Very worthwhile - Very worthless	2.05	1.11
A very good thing - A very bad thing	2.03	1.12
Composite instrumental attitude score (α = .955)	2.07	1.03
Experiential attitude		
Very inspired - Very uninspired	1.56	1.28
Very proud - Very embarrassed	1.55	1.25
Very happy - Very sad	1.52	1.24
Very calm - Very angry	1.48	1.21
Very unconcerned - Very worried	1.20	1.39
Composite experiential attitude score (α = .924)	1.46	1.12
Overall attitude score		
Composite instrumental + experiential attitude score (α = .951)	1.73	1.02

[a] Measured on a 7-point bipolar scale, where -3 = (most negative response, e.g. *very worthless*), 0 = neutral, +3 = (most positive response, e.g. *very worthwhile*); *n* = 3,020.

4.7. CLIMATE CHANGE BELIEFS

Respondents were asked about their climate change beliefs in two ways. First, the question used in the 2018 ARENA survey and previous energy technology and CSIRO reports was repeated to understand whether they think climate change is happening now or will happen in the next 30 years. Second, a question used in a previous CSIRO study (Gardner et al., 2010) was repeated to determine how convinced respondents are that climate change represents a real problem for Australia. Most respondents (75.6%) indicated they believe climate change is already happening, which is an increase from the 2018 ARENA survey (70.8%; Table 19). On average, respondents are convinced that climate change represents a real problem for Australia (Table 19). Almost 70% indicated they are "very convinced" or "convinced", and a further 13.6% were "slightly convinced" (Figure 15). Only 4% were "very unconvinced".

Table 19. Climate change beliefs

Do you believe climate change is happening now or will happen in the next 30 years?	2021		2018	
	n	%	*n*	%
Yes, it is already happening.	2284	75.6	1959	70.3
It will start happening within the next 30 years.	280	9.3	248	8.9
No, it is not happening and won't.	231	7.6	250	9.0
I do not know/ I am not sure	225	7.5	328	11.8
How convinced are you that climate change represents a real problem for Australia?			**Mean[a]**	**SD**
Average response			5.70	1.61

[a]Measured on a 7-point rating scale, where 1 = very unconvinced, 4 = neither convinced nor unconvinced, 7 = very convinced; *n* = 3,020.

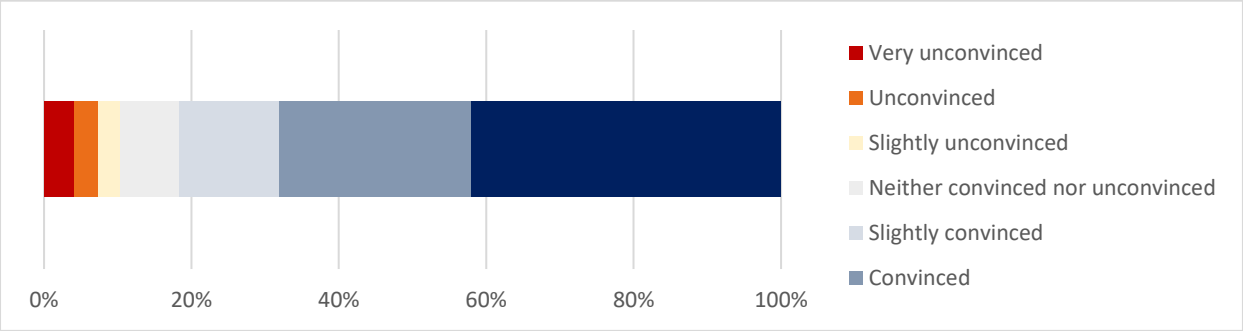

Figure 15. Level of conviction that climate change represents a real problem for Australia

Two analyses were conducted to check whether respondents' beliefs about climate change were related to their support for hydrogen. First, respondents were split into two groups: those who do believe climate change is happening now (n = 2284) and all other respondents (n = 736). An independent-samples t-test was used to check for differences in support of "hydrogen as a possible solution for energy and environmental challenges" between these two groups (Appendix 1 F. Support for hydrogen export and facilities).

In both the Time 1 and Time 2 measures, belief that climate change is happening now was related to greater support for hydrogen (Figure 16). At Time 1, those who believe climate change is happening now were slightly more supportive (M = 5.39, SD = 1.23) than those who do not (M = 5.09, SD = 1.30; t(3018) = -5.544, p < .01), however the effect size was small (Cohen's d = 0.237). In contrast, at Time 2, the gap between those who believe climate change is happening now and those who do not widened. Respondents in the first group increased their support to a moderate level (M = 5.99, SD = 1.06), and while the second group also increased their support (M = 5.42, SD = 1.28), their increase was not as great as the first group (t(1083.83) = -10.891, p < .01). The effect size at Time 2 increased to a moderate level (Cohen's d = 0.485).

The finding that climate change beliefs were related to support for hydrogen was also supported by the correlation between climate change conviction and the two measures of support for hydrogen. In the first measure (Time 1), there was a weak correlation between climate change conviction and support (r_s = .21, p < .01). The association between climate change conviction and support for hydrogen increased in the second measure, although it is still considered a weak relationship (r_s = .35, p < .01). This suggests that people who already believe climate change

is happening may be more receptive to the idea of using hydrogen in the future, especially as they begin to learn more about the applications and benefits of this energy source. However, it is important to bear in mind that the relationship between climate change beliefs and support for hydrogen is not strong, and that respondents who expressed climate change denial opinions (or are unsure) are also supportive of hydrogen.

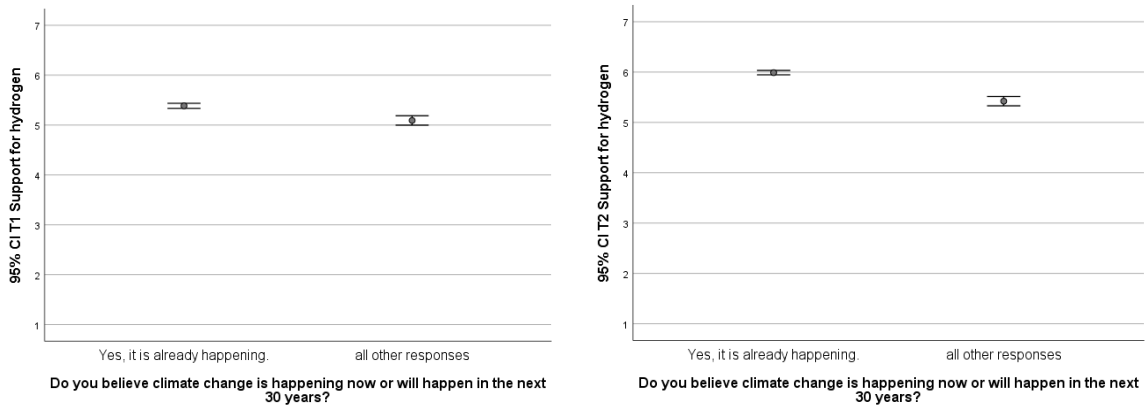

Figure 16. Relationship between support for hydrogen (Time 1 and Time 2 measures) and belief that climate change is happening now

4.8. ENVIRONMENTAL IDENTITY

People's sense of their environmental identity (the extent to which they see themselves as being environmentally-friendly) can influence their behaviours (Fielding, McDonald, & Louis, 2008). To test whether environmental identity is related to support for hydrogen, three statements from Fielding et al. (2008) were used. The internal consistency of the three statements was examined using Cronbach's alpha to see how closely the statements were related to each other, which gives an indication of the reliability of this set of statements (or "scale"). The alpha score was .929, which means that the internal consistency is acceptable. This means a composite score (being the average score over the three statements) can be calculated to represent each respondent's overall environmental identity. In this study, the closer a score is to 7, the stronger the respondent's environmental identity. Overall, the respondents indicated their environmental identity was slight-moderately aligned to the environmental statements provided (Table 20).

The relationship between environmental identity and support for hydrogen was examined. Spearman's rho correlations showed there is a weak relationship between environmental identity and the Time 1 measure of support for hydrogen (r_s = .270, p < .01), and although this relationship was stronger at the Time 2 measure of support (r_s = .363, p < .01), it is still considered to be weak.

These findings mirror those of the relationship between climate change beliefs and support for hydrogen. While the analyses did find a relationship between environmental identity and support for hydrogen, it is important to note that this relationship is not strong. Those who do *not* hold a strong sense of environmental identity are also supportive of hydrogen, but to a lesser degree than those who strongly identify as being environmentally friendly. This suggests that public support for hydrogen may be present across a broad range of groups in society, who differ in their opinions about environmental issues.

Table 20. Environmental identity

Please indicate how much you agree or disagree with the following statements	Mean[a]	SD
Being an environmentally friendly person is an important part of who I am	5.19	1.43
I am the type of person who is environmentally friendly	5.39	1.28
I see myself as an environmentally friendly person	5.39	1.30
Composite Environmental Identity Score (α = .929)	5.32	1.25

[a] Measured on a 7-point rating scale, where 1 = strongly disagree, 7 = strongly agree); *n* = 3,020.

4.9. INNOVATOR CATEGORY

A set of statements were used to group respondents according to their affinity for new technology. These statements were refined versions of the statements used in the 2018 ARENA survey, which were adaptations from Noppers, Keizer, Bockarjova, and Steg (2015) work on consumers adoption of sustainable innovations (with a specific focus on innovative cars). Their work was underpinned by Rogers' theory of the Diffusion of Innovations (Rogers, 2003). Although Noppers et al. (2015) point out that the specificity of the innovation is an important consideration (because people's adoption of different innovations is likely to vary between products), in the national survey the term "new technology" was used to encompass people's response to any new technology more broadly. The largest group of respondents (47.4%) fell into middle category (Table 21), which can be described as the "Early majority" adopters (Noppers et al., 2015). Using the labels from the 2018 ARENA report, the other groups include "Innovators" (9.5%), "Early adopters" (25.3%), "Late majority" (11.4%), and "Traditionalists" (6.5%).

Table 21. Spread of respondents in each innovator category

When thinking of your response to new technology, which best describes you?	*n*	%
I closely follow new technology and am comfortable taking risks by being the first to purchase it.	286	9.5
I see potential advantages in new technology and like to be among the first to use it.	763	25.3
I am interested in new technology but prefer to wait for others to try it first.	1430	47.4
I am not thrilled by new technology but might purchase after it has been on the market for some time.	344	11.4
I have little affinity with new technology and do not like to buy it unless necessary.	197	6.5

Support for hydrogen was compared across the different adopter categories. For both the Time 1 and Time 2 measures, support was greatest for "Innovators", and decreased with each category thereafter (Figure 17). An ANOVA and Tukey's HSD post hoc comparisons tests (Appendix 1 D, Table 16-19) revealed that the differences between the means of the groups were significantly different, with the exception of the "Late majority" and "Traditionalists" in the Time 1 measure (Table 22).

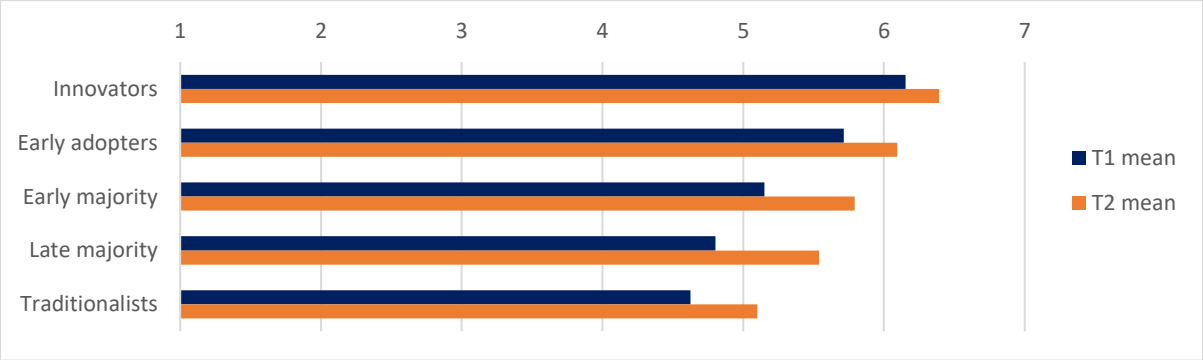

Figure 17. Support for hydrogen by new technology adopter category at Time 1 and 2.

Table 22. Support for hydrogen by new technology adopter category at Time 1 and 2.

		Time 1		Time 2	
Category	Statement	*M*	*SD*	*M*	SD
Innovators	I closely follow new technology and am comfortable taking risks by being the first to purchase it.	6.15	1.07	6.39	0.93
Early adopters	I see potential advantages in new technology and like to be among the first to use it.	5.72	1.15	6.09	1.02
Early majority	I am interested in new technology but prefer to wait for others to try it first.	5.15	1.18	5.79	1.09
Late majority	I am not thrilled by new technology but might purchase after it has been on the market for some time.	4.80	1.21	5.54	1.16
Traditionalists	I have little affinity with new technology and do not like to buy it unless necessary.	4.62	1.40	5.10	1.56

4.10. ABILITY TO PAY ENERGY BILLS

4.10.1. Ability to pay electricity bills

All respondents answered a question about their ability to pay their electricity bill. The majority of respondents (59.0%) said that paying their electricity bill is never a problem, whereas 6.9% said they “always struggle” to pay their electricity bills (Table 23).

Table 23. Ability to pay electricity bills

Which best describes your situation in relation to your electricity bill?	*n*	%
Paying my electricity bill in full is never a problem for me	1781	59.0
I sometimes find it hard to pay my electricity bill when it becomes due	622	20.6
I always struggle to pay my electricity bill when it becomes due	209	6.9
I pre-pay my electricity bill	132	4.4
My electricity bill is usually in credit after factoring in solar feed-in tariffs	108	3.6
I do not pay for electricity in my house	168	5.6

To check whether a respondent’s ability to pay their electricity bills influences their support for hydrogen, ANOVA and Tukey’s HSD post hoc multiple comparisons tests (Appendix 1 D, Table 20 - 22) were conducted on the top three groups of respondents from Table 23. The three groups were defined as those for whom paying their electricity bills is: (1) never a problem, (2) sometimes a problem, and (3) always a struggle. For both measures of support (Time 1 and Time 2), there were statistically significant differences in the level of support between those who never experience a problem paying their bills and those who always struggle, and between those who sometimes find it hard to pay and those who always struggle (Figure 18). There were no differences between those who never have a problem and those who sometimes have a problem paying their electricity bills.

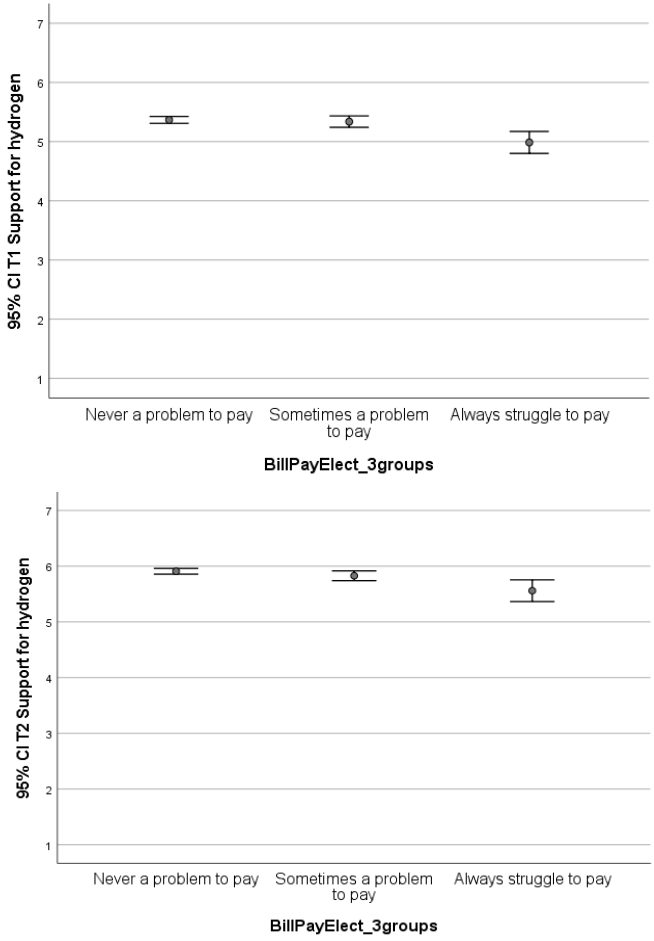

Figure 18 Comparisons between ability to pay electricity bills and support for hydrogen (T1 and T2)

4.10.2. Ability to pay gas bills

There were 1771 respondents (58.6% of the survey sample) who indicated they use gas and are connected to the mains supply (Appendix 1 D, Table 23 - 25). These respondents were asked about their ability to pay their gas bills. Almost two thirds (64.3%) indicated they never have a problem paying their gas bills in full (Table 24).

Table 24. Ability to pay gas bills

Which best describes your situation in relation to your gas bill?	*n*	%
Paying my gas bill in full is never a problem for me	1137	64.3
I sometimes find it hard to pay my gas bill when it becomes due	339	19.2
I always struggle to pay my gas bill when it becomes due	97	5.5
I pre-pay my gas bill	79	4.5
I do not pay for gas in my house	117	6.6

An ANOVA and Tukey's HSD post hoc multiple comparisons tests were conducted to check whether respondent's ability to pay their gas bills influences their support for hydrogen (Appendix 1 D, Table 23-25). The results of these analyses showed there was only a significant difference (at both time measures of support) between respondents who never have a problem paying their bills, and those who always struggle. However, the difference in the level of support is very small (Figure 19), and all groups were supportive overall.

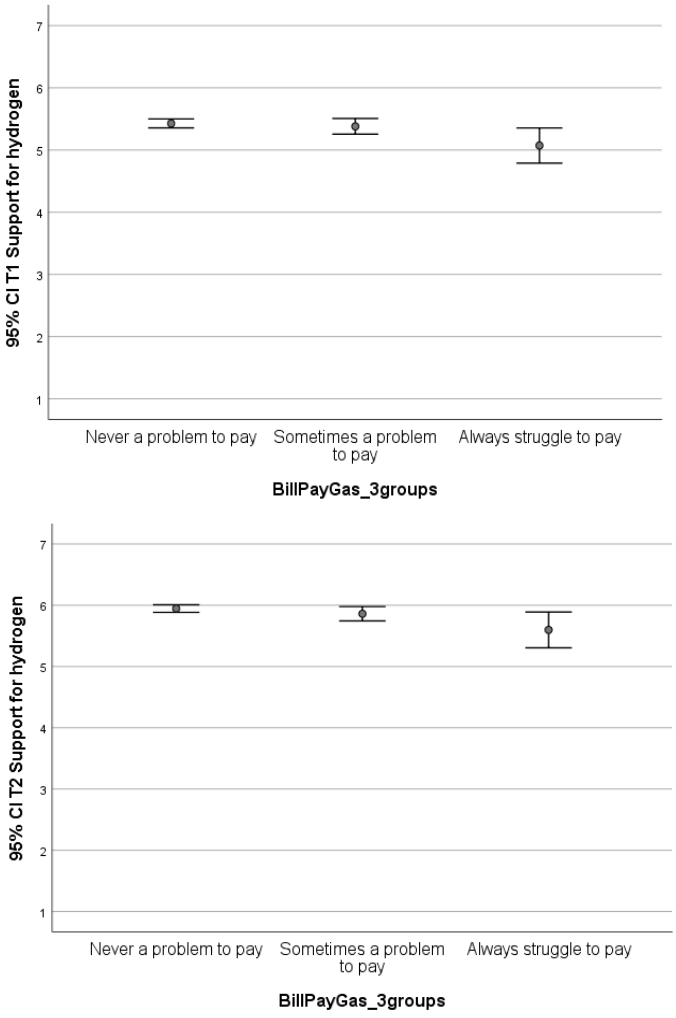

Figure 19 Comparisons between ability to pay gas bills and support for hydrogen (T1 and T2)

4.11. TRUST IN ORGANISATIONS

Trust in organisations to minimise the impact on the environment and act in the best interest of consumers are important requirements for ensuring a Social Licence to Operate (Moffat and Zhang, 2014). There is also research that has demonstrated that organisational integrity and competence will lead to greater trust and ultimately greater support (Terwel et al. 2009). To better understand the public's perceptions of different institutions involved in the hydrogen industry, respondents were asked the extent to which they thought particular organisations and groups would act in the best interests of consumers if a hydrogen economy was developed in Australia. As with previous surveys, CSIRO was the most trusted followed by universities and environmental non-government organisations. State, federal and local governments were the next most trusted and closely aligned. The associated industries and media were less trusted although all were above the mid-point so still positively viewed.

If a hydrogen economy was to be developed in Australia, to what extent do you agree or disagree that the following groups would act in the best interest of the consumer?	Mean[a]	SD
CSIRO	5.43	1.33
Universities	5.24	1.32
Environmental Non-Government Organisations (ENGOs)	5.18	1.42
State government	4.94	1.51
Federal government	4.89	1.64
Local government	4.84	1.47
Car/appliance manufacturers	4.50	1.50
Electricity generation companies	4.35	1.65
Media	4.33	1.54
Fuel/gas supply companies	4.08	1.76

[a] Measured on a 7-point rating scale, where 1 = strongly disagree, 4 = neither agree nor disagree, 7 = strongly agree); *n* = 3,020.

5. Conclusions

Reflecting on the results of this national survey there are several conclusions that can be drawn.

Compared to the 2018 ARENA survey, the results of respondents' rating of their subjective knowledge suggests that while only a small percentage of the population are confident about their knowledge of hydrogen there is a growing awareness of hydrogen. It is also apparent that general knowledge of hydrogen as an alternative energy source for the home is increasing. Although awareness of specific projects and policies is still relatively low, in both surveys hydrogen vehicles were the one respondents were most familiar with.

We have also seen a small but significant increase in general support for hydrogen since 2018 and this is not impacted by major political party preferences. This result is promising for Australians as it suggests there will continue to be a bi-partisan approach towards realising the benefits of a hydrogen industry which supports our findings that on the whole it appears that hydrogen is widely thought to be a useful, beneficial and worthwhile technology. However, there is some variation in the way people feel about hydrogen as reflected in the greater standard deviation scores in response to the attitudinal questions.

Given that the greatest changes in opinion occurred between Time 1 and Time 2 and not between Time 2 and Time 3 it suggests that people will form their opinions based on their understanding and knowledge of the technology more so than on a simple message frame. The factual information provided through the animated video and images and texts has some effect on general support for hydrogen. It does suggest that providing some factual information as the industry develops might be helpful in garnering support. However, whether this is enough to have a long lasting effect remains to be seen at the same time in all of the responses to date projects and the use of hydrogen remains relatively hypothetical. As this changes it will be important to ensure there is adequate engagement with the range of publics to provide them with relevant information and answer any questions they may have.

Examining in more detail the effects of the information provided on support there were some differences. If respondents were supportive to begin with, they tended to become more supportive. However, for those who were neither supportive nor unsupportive, they formed an opinion and tended toward being more supportive. Whereas those who were unsupportive, their views did not tend to change much.

There was an increase in acceptance of all forms of hydrogen production from 2018, including with CCS, although this was least preferred. Respondents clearly indicated a preference for hydrogen produced from renewable energy and electrolysis. However, these responses do not take into account any reflection on the scale required for ensuring a successful export industry. This includes considerations of competing land and water use, and changes in lifestyles that may be bought about from hosting large scale renewable energy projects. Similarly, while people were accepting of hydrogen for export use, they were more likely to agree to a production facility near them for domestic use rather than for export.

The results demonstrate that respondents are rather in agreement with hydrogen as a potential future energy source for generating Australia's future energy needs. When compared with other energy technologies, "the new renewable" fall third behind solar PV and wind in the technologies provided. When considering developing an export market there are multiple factors that need to be considered in equal amounts. Safety is key, but there is also a need to ensure economic benefits for Australia including jobs while ensuring environmental impacts are minimised.

When it comes to local householder preferences gas appears to be the preferred cooking fuel and it can be speculated that as a result, hydrogen blends would also seem acceptable. However, when comparing support for hydrogen between gas users and non-gas users, the effects were quite small which suggests that Australians are not completely committed to a gas future. It is likely safety, costs and overall affordability of choices will influence this final outcome.

6. Implications and Recommendations for industry

1. Safety is the number one priority for Australians to ensure the development of a successful hydrogen industry and will require adequate regulations are in place provide confidence.
2. Australians are positive toward the economic opportunities it might bring such as jobs and benefits for regional communities.
3. Provision of factual information during the survey, did help to strengthen support for those who had previously expressed no opinion, however it did not influence those who were strongly opposed.
4. Green hydrogen continues to be the preferred generation source compared with any using CCS.
5. Overall there is multi-partisan support for hydrogen which is helpful when considering the industry's development.
6. While gas users expressed a stronger support for continued use of gas and transition to hydrogen, the difference was minimal. This will be an important issue to monitor as the continued discussion between all electric and gas transpires.

7. Next steps and future works

1. Produce academic articles with more in-depth analysis of the survey results to identifying influencing factors and correlations.
2. Make comparisons of the national sample with the results of the deliberative processes to compare differences in attitudes when provided with a more comprehensive information set and the opportunity to deliberate with peers on the information provided.
3. Undertake a literature review on biomethane and other renewable gases and implement a smaller national survey to understand how individuals respond to the concept of biogases.

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Appendix 1. Additional information and analyses

A. RESPONDENT CHARACTERISTICS (SAMPLE DESCRIPTION)

Table 25 Demographic characteristics of respondents

Characteristic	Frequency (*n*)		Percent (%)	
State				
NSW	947		31.4	
VIC	755		25.0	
QLD	594		19.7	
SA	254		8.4	
WA	310		10.3	
TAS	71		2.4	
NT	32		1.1	
ACT	57		1.9	
Area type				
Metropolitan	2204		73.0	
Regional	776		25.7	
Gender				
Male	1463		48.4	
Female	1543		51.1	
Transgender Female	6		.2	
Transgender Male	4		.1	
Gender Variant/Non-Conforming	4		.1	
Country of birth[a]				
Australia	2235		74.0	
England	170		5.6	
India	74		2.5	
China (excluding Hong Kong and Taiwan)	29		1.0	
Malaysia	26		.9	
Hong Kong	26		.9	
Other (countries < .6%)	460		15.1	
Aboriginal or Torres Strait Islander status				
No	2914		96.5	
Yes, Aboriginal	96		3.2	
Yes, Torres Strait Islander	10		.3	
Age Group				
18 – 34 years	899		29.8	
35 – 54 years	1026		34.0	
55+ years	1095		36.3	
	Min	**Max**	**Mean**	**SD**
Age (years)	18	91	47.8	17.4

[a]In the Australian population, 66.7% were born in Australia. Source: Australian Bureau of Statistics (2020) SEW data, available on www.abs.gov.au.

Table 26 Education and employment

Characteristic	*n*	%
Education completed[a]		
Year 10 or below	289	9.6
Year 11 or equivalent	79	2.6
Year 12 or equivalent	436	14.4
Trade certificate or Apprenticeship	147	4.9
Certificate I or II	78	2.6
Certificate III or IV	348	11.5
Advanced Diploma / Diploma	387	12.8
Bachelor or Honours degree	833	27.6
Postgraduate degree (e.g. Masters, PhD)	406	13.4
Other	17	.6
Occupational status		
Student	162	5.4
Household duties	195	6.5
Employed Part-time	543	18.0
Employed Full-time	1128	37.4
Unemployed not looking for work	39	1.3
Unemployed looking for work	156	5.2
Retired	550	18.2
Pensioner	142	4.7
Not able to work	49	1.6
Other	56	1.9
Occupational sector (current or prior)		
Health care and social assistance	280	9.3
Retail trade	267	8.8
Education and training	238	7.9
Professional, scientific, technical services	226	7.5
Administrative and support workers	196	6.5
Financial and Insurance services	151	5
Information, media and telecommunications	149	4.9
Manufacturing	126	4.2
Construction	125	4.1
Transport, portal and warehousing	116	3.8
Public administration and safety	105	3.5
Accommodation and food services	85	2.8
Arts and recreation services	53	1.8
Wholesale trade	48	1.6
Agriculture, forestry, fishing	45	1.5
Mining	42	1.4
Electricity, gas, water, waste services	35	1.2
Rental, hiring and real estate services	32	1.1
Other services	312	10.3
Not applicable	389	12.9

[a]Persons aged 15-74 years. Australian Bureau of Statistics: Education and Work, Australia, May 2020. In the Australian population, 19.0% have Bachelor's degrees, and a further 7.7% have postgraduate degrees.

Table 27 Household characteristics

Characteristic	*n*	%
Home ownership status		
Owned outright	1036	34.3
Owned with a mortgage	930	30.8
Being rented	900	29.8
Being occupied rent free	50	1.7
Being purchased under a rent/buy scheme	39	1.3
Being occupied under a life tenure scheme	13	.4
Other	52	1.7
Dwelling type		
Separate house	1863	61.7
Semi-detached, row or terrace house, townhouse etc. with: One storey	302	10.0
Semi-detached, row or terrace house, townhouse etc. with: Two or more storeys	224	7.4
Flat or apartment: In a one or two storey block	217	7.2
Flat or apartment: In a three storey block	119	3.9
Flat or apartment: In a four or more storey block	193	6.4
Flat or apartment: Attached to a house	39	1.3
Caravan	16	.5
Cabin, houseboat	11	.4
Improvised home, tent, sleepers out	12	.4
House or flat attached to a shop, office, etc.	24	.8
Household composition		
Couple with child/children	941	31.2
Couple with no children	856	28.3
Single person household	593	19.6
Group household	282	9.3
One parent with child/children	187	6.2
Other family (e.g. extended family household)	161	5.3
Household income		
Less than $30,000	473	15.7
$30,000 - $59,999	707	23.4
$60,000 - $89,999	518	17.2
$90,000 - $119,999	418	13.8
$120,000 - $149,999	369	12.2
$150,000 - $179,000	181	6.0
$180,000 - $199,999	115	3.8
$200,000 - $219,999	52	1.7
$220,000 - $239,999	27	.9
$240,000 - $269,999	27	.9
$270,000 - $299,999	31	1.0
More than $300,000	33	1.1
Other	69	2.3

B. HOUSEHOLD ENERGY CHARACTERISTICS

Table 28. Respondents who subscribe to green power

	n	%
Subscribes to Green Power		
Yes	571	18.9
No	1783	59.0
Do not know	666	22.1
Percent of Green Power subscription		
1-25%	82	31.1
26-50%	76	28.8
51-75%	38	14.4
76-100%	68	25.8
Subtotal	264	100
Do not know Green Power percentage	307	

Table 29 Domestic energy sources

	Yes		No	
Energy source & use	*n*	%	*n*	%
Electricity (grid connected)	2868	95.0	152	5.0
Gas (mains)	1771	58.6	1249	41.4
Solar PV (rooftop)	966	32.0	2054	68.0
Gas (bottled)	712	23.6	2308	76.4
Solar hot water	587	19.4	2433	80.6
Battery storage unit	263	8.7	2757	91.3
Battery electric vehicle	200	6.6	2820	93.4
Others	105	3.5	2915	96.5

Table 30 Reason for not having gas connection

Main reason you do not have a mains gas connection	*n*	%
There is no reticulated/mains gas network in my neighbourhood/ building.	518	41.5
My home has been designed to run on all-electric fixed appliances.	487	39.1
It was too expensive to connect to the reticulated/mains gas network in my neighbourhood.	68	5.5
Renting/not the building owner	45	3.6
I disconnected from the gas network because I switched my fixed appliances to all-electric.	33	2.6
Technical difficulties prevented the connection to the reticulated/mains gas network in my neighbourhood.	28	2.2
I asked to be disconnected from the reticulated gas network because I could not pay the bills.	17	1.4
Do not like gas/concerned about safety etc.	12	1.0
My retailer disconnected me because I could not pay the bills.	11	0.9
Use bottled gas	6	0.5
Other reason (please specify):	22	1.8
Total	1247	100

Table 31 Domestic energy uses and preferences

Domestic use and energy source	Currently use		Prefer to use	
	n	%[a]	*n*	%[a]
Hot water				
Electricity (mains)	2120	70.2	832	27.5
Gas	1664	55.1	923	30.6
Solar hot water system	600	19.9	1417	46.9
Diesel	134	4.4	174	5.8
Wood	198	6.6	218	7.2
Other	42	1.4	51	1.7
Not applicable	43	1.4	453	15.0
Stovetop cooking				
Electricity (mains)	1635	54.1	967	32.0
Gas	1681	55.7	1585	52.5
Diesel	114	3.8	126	4.2
Wood	100	3.3	156	5.2
Other	16	0.5	66	2.2
Not applicable	40	1.3	453	15.0
Space heating				
Electricity (mains)	1908	63.2	990	32.8
Gas	908	30.1	726	24.0
Passive solar design (thermal mass)	182	6.0	644	21.3
Diesel	81	2.7	114	3.8
Wood	269	8.9	331	11.0
Other (open text)	36	1.2	61	2.0
Not applicable	391	12.9	697	23.1

[a]Percent of total sample (*N* = 3,020)

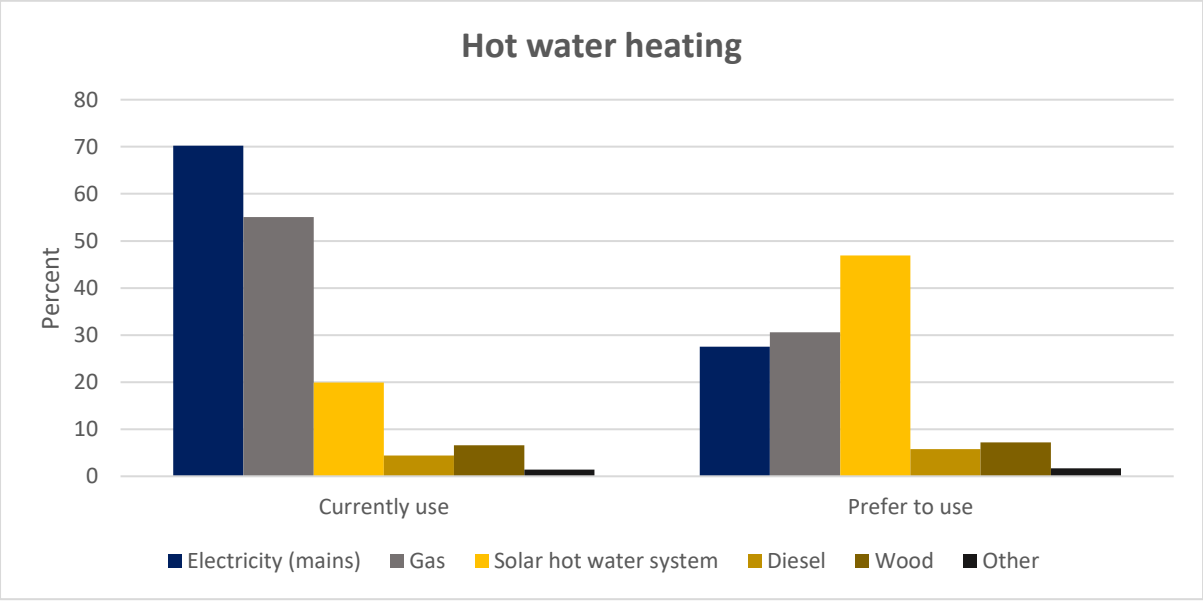


Figure 20 Hot water heating use and preferences

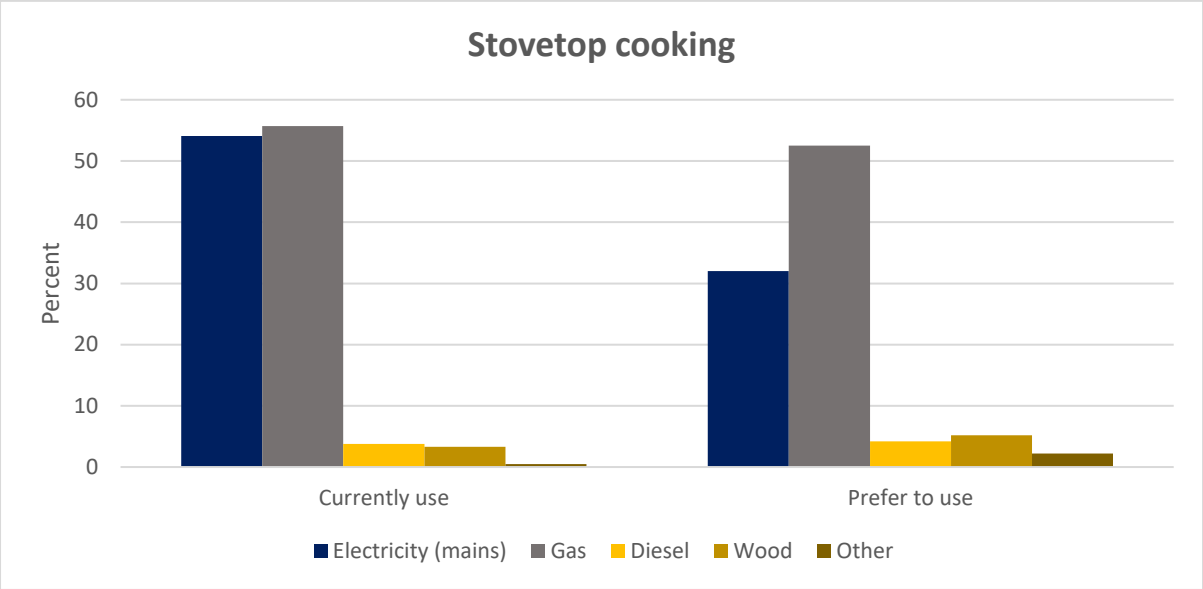


Figure 21 Stovetop cooking use and preferences

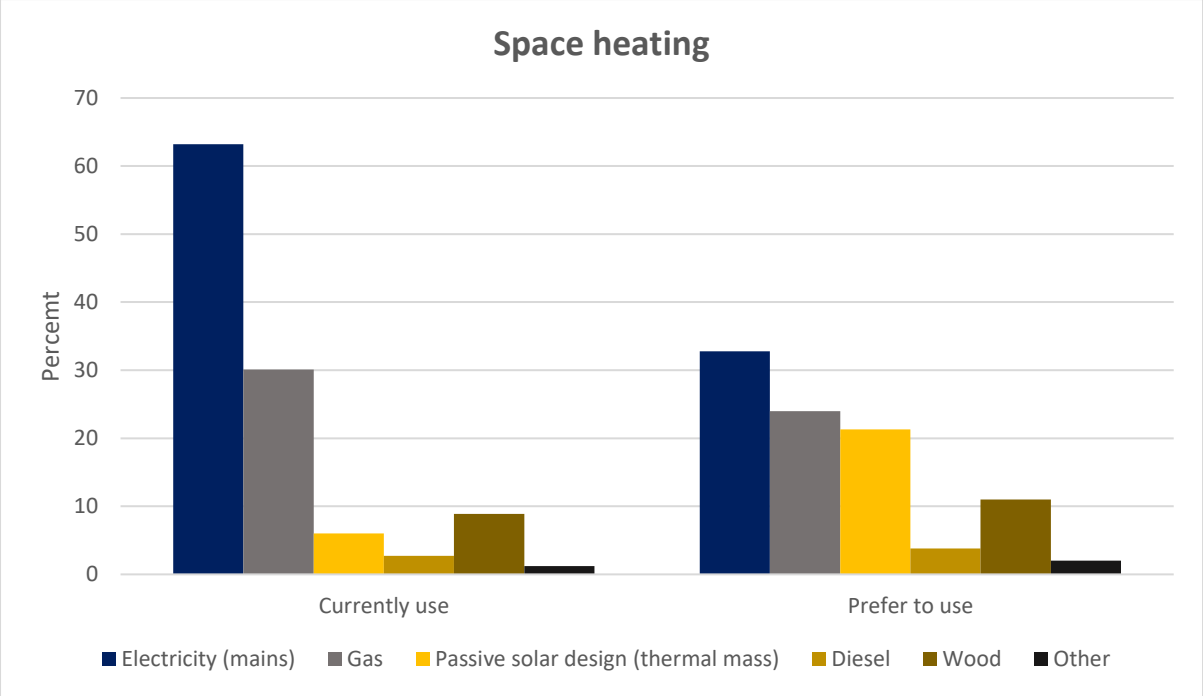


Figure 22 Space heating use and preferences

Table 32 Awareness of hydrogen production projects in Australia

I have heard about a hydrogen production project in Australia	NSW	VIC	QLD	SA	WA	TAS	NT	ACT
Yes								
Count	281	190	137	75	78	29	11	16
Expected Count	256.2	204.3	160.7	68.7	83.9	19.2	8.7	15.4
Residual	24.8	-14.2	-23.7	6.3	-5.9	9.8	2.3	0.6
No								
Count	541	458	380	141	201	36	18	33
Expected Count	566.9	452	355.6	152.1	185.6	42.5	19.2	34.1
Residual	-25.9	6	24.4	-11.1	15.4	-6.5	-1.2	-1.1
Unsure								
Count	125	107	77	38	31	6	3	8
Expected Count	123.9	98.8	77.7	33.2	40.5	9.3	4.2	7.5
Residual	1.1	8.3	-0.7	4.8	-9.5	-3.3	-1.2	0.5

C. CONVERSION OF 2018 ARENA DATA

The 2021 National Survey contained many of the same questions used in the 2018 ARENA survey, with one minor change. The rating scale on the 2021 survey was increased to 7 point (from 5 points), to facilitate more variability in the data (since many of the responses to these variables clustered around the midpoint in the 2018 data). To convert the responses from the ARENA dataset to a 7 point scale, the following formula was used:

$$Y = (B - A) * (x - a) / (b - a) + A$$

where Y = the adjusted new score, x = the initial score to be adjusted, A = new minimum, B = new maximum, a = current minimum, b = current maximum. This gives us:

$$Y = (7 - 1) * (x - 1) / (5 - 1) + 1$$

which is equivalent to:

$Y = 1.5 * x - 0.5$.

Reference: https://www.ibm.com/support/pages/node/422073

Once calculated, the ARENA variables in the cleaned dataset (*N* = 2,785) were matched with the relevant FFCRC 2021 variables, then checked for coding direction (reversing it if necessary), then two data sets were merged to enable comparisons between the two surveys.

D. ADDITIONAL ANALYSES

Table 33 Support for hydrogen by political party preference

If there would be a federal election on next Sunday, which party would you vote for	T1 Support for hydrogen		T2 Support for hydrogen		T3 Support for hydrogen	
	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
Liberal/National	5.40	1.22	5.88	1.12	6.00	1.06
Labor	5.39	1.23	5.93	1.06	6.02	1.03
Greens	5.32	1.24	5.94	1.14	5.93	1.28
Other	4.88	1.35	5.48	1.35	5.62	1.33

Table 34 Open-ended responses to midpoint selection (neither supportive nor unsupportive) for hydrogen support.

Time 1 (Survey start)	Time 2 (Before message)	Time 3[a] (After message)
Unsupportive if used in conjunction with 'natural' gas and fracking. Otherwise, no opinion.	zero point energy	I'm concerned on water supply if this how Australian gov will provide clean water
If hydrogen came from the use of renewables, then fine otherwise no.	this survey has put me off hydrogen by being so skewed	I'm concerned about safety
I have heard that it still add to climate change. Hi	If we do this will we run short of water.	It's probably like that E10 crap and your car wouldn't pull the skin off a rice pudding
Have people forgotten the Hindenburg already?	I am concerned most about safety. Knowing it is highly flammable makes me hesitant to use at all.	already answered plus i do not trust this government to take climate friendly decisions
Don't understand environmental impact	have concerns over safety issues	No real consensus that reducing carbon will make a serious change in reducing or eliminating whatever climate change phenomenon is the focus of the media from day-to-day.
Because hydrogen is normally produced from the reaction of methane with steam - methane is a fossil fuel, and this production also produces CO and CO2	I don't know in comparison to other forms of energy creation	I don't trust the government on energy approaches - I would like to hear a range of views on this solution
		I don't know enough nor how credible the quote is and who made it.
		Don't know enough about hydrogen 'production' AND it poses a threat to community unification.
		Because the current government isn't serious about climate change (see Kelly, Christensen etc) so I have trouble believing anything they say about this very important issue. They have to convince the Nats not to build coal fired power stations first.
		I would have to see it trialled first
		I don't trust the government to ensure ONLY GREEN hydrogen is produced
		I would rather not mix and the store emissions

Table 35 Objective knowledge scores and support for hydrogen – Descriptives

Knowledge score (x/5)		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
						Lower Bound	Upper Bound		
T1 Support for hydrogen	0	582	4.6856	1.05401	.04369	4.5998	4.7714	1.00	7.00
	1	548	5.1423	1.17321	.05012	5.0439	5.2408	1.00	7.00
	2	749	5.4820	1.22856	.04489	5.3938	5.5701	1.00	7.00
	3	592	5.6081	1.18299	.04862	5.5126	5.7036	1.00	7.00
	4	375	5.5947	1.32881	.06862	5.4597	5.7296	1.00	7.00
	5	174	5.6322	1.46335	.11094	5.4132	5.8511	1.00	7.00
	Total	3020	5.3142	1.25444	.02283	5.2695	5.3590	1.00	7.00
T2 Support for hydrogen	0	582	5.6306	1.08627	.04503	5.5421	5.7190	1.00	7.00
	1	548	5.7099	1.08914	.04653	5.6185	5.8012	1.00	7.00
	2	749	6.0027	1.03933	.03798	5.9281	6.0772	1.00	7.00
	3	592	5.9899	1.09602	.04505	5.9014	6.0783	1.00	7.00
	4	375	5.8667	1.33578	.06898	5.7310	6.0023	1.00	7.00
	5	174	5.8736	1.46089	.11075	5.6550	6.0922	1.00	7.00
	Total	3020	5.8510	1.14485	.02083	5.8101	5.8918	1.00	7.00

Table 36. Objective knowledge scores and support for hydrogen – Multiple comparisons (Bonferoni) (DV T1)

Dependent Variable - T1 Support for hydrogen						
(I) Knowledge score (5 questions)	(J) Knowledge score (5 questions)	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
0	1	-.45677*	.07180	.000	-.6677	-.2459
	2	-.79641*	.06665	.000	-.9922	-.6006
	3	-.92254*	.07041	.000	-1.1294	-.7157
	4	-.90910*	.07987	.000	-1.1437	-.6745
	5	-.94662*	.10422	.000	-1.2528	-.6405
1	0	.45677*	.07180	.000	.2459	.6677
	2	-.33964*	.06781	.000	-.5388	-.1405
	3	-.46577*	.07150	.000	-.6758	-.2557
	4	-.45233*	.08084	.000	-.6898	-.2149
	5	-.48985*	.10496	.000	-.7982	-.1815
2	0	.79641*	.06665	.000	.6006	.9922
	1	.33964*	.06781	.000	.1405	.5388
	3	-.12613	.06633	.860	-.3210	.0687
	4	-.11269	.07631	1.000	-.3368	.1115
	5	-.15021	.10151	1.000	-.4484	.1480
3	0	.92254*	.07041	.000	.7157	1.1294
	1	.46577*	.07150	.000	.2557	.6758
	2	.12613	.06633	.860	-.0687	.3210
	4	.01344	.07961	1.000	-.2204	.2473
	5	-.02408	.10402	1.000	-.3296	.2815
4	0	.90910*	.07987	.000	.6745	1.1437
	1	.45233*	.08084	.000	.2149	.6898
	2	.11269	.07631	1.000	-.1115	.3368
	3	-.01344	.07961	1.000	-.2473	.2204
	5	-.03752	.11064	1.000	-.3625	.2875
5	0	.94662*	.10422	.000	.6405	1.2528
	1	.48985*	.10496	.000	.1815	.7982
	2	.15021	.10151	1.000	-.1480	.4484
	3	.02408	.10402	1.000	-.2815	.3296
	4	.03752	.11064	1.000	-.2875	.3625

*. The mean difference is significant at the 0.05 level.

Table 13. Objective knowledge scores and support for hydrogen – Multiple comparisons (Bonferoni) (DV T2)

Dependent Variable – T2 Support for hydrogen						
(I) Knowledge score (5 questions)	(J) Knowledge score (5 questions)	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
0	1	-.07927	.06761	1.000	-.2779	.1193
	2	-.37209*	.06277	.000	-.5565	-.1877
	3	-.35928*	.06631	.000	-.5541	-.1645
	4	-.23608*	.07522	.026	-.4570	-.0151
	5	-.24298	.09814	.200	-.5313	.0453
1	0	.07927	.06761	1.000	-.1193	.2779
	2	-.29282*	.06385	.000	-.4804	-.1052
	3	-.28001*	.06734	.000	-.4778	-.0822
	4	-.15681	.07613	.592	-.3804	.0668
	5	-.16371	.09884	1.000	-.4541	.1266
2	0	.37209*	.06277	.000	.1877	.5565
	1	.29282*	.06385	.000	.1052	.4804
	3	.01281	.06247	1.000	-.1707	.1963
	4	.13600	.07186	.877	-.0751	.3471
	5	.12911	.09559	1.000	-.1517	.4099
3	0	.35928*	.06631	.000	.1645	.5541
	1	.28001*	.06734	.000	.0822	.4778
	2	-.01281	.06247	1.000	-.1963	.1707
	4	.12320	.07497	1.000	-.0970	.3434
	5	.11630	.09795	1.000	-.1714	.4040
4	0	.23608*	.07522	.026	.0151	.4570
	1	.15681	.07613	.592	-.0668	.3804
	2	-.13600	.07186	.877	-.3471	.0751
	3	-.12320	.07497	1.000	-.3434	.0970
	5	-.00690	.10419	1.000	-.3130	.2992
5	0	.24298	.09814	.200	-.0453	.5313
	1	.16371	.09884	1.000	-.1266	.4541
	2	-.12911	.09559	1.000	-.4099	.1517
	3	-.11630	.09795	1.000	-.4040	.1714
	4	.00690	.10419	1.000	-.2992	.3130

*. The mean difference is significant at the 0.05 level.

Table 37 Comparison of support for hydrogen between gas (mains) users and non-users – Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
T1 Support for hydrogen	Equal variances assumed	.560	.454	2.582	3018	.010	.11960	.04632	.02877	.21044
	Equal variances not assumed			2.573	2645.953	.010	.11960	.04649	.02845	.21076
T2 Support for hydrogen	Equal variances assumed	6.819	.009	2.434	3018	.015	.10293	.04228	.02003	.18584
	Equal variances not assumed			2.406	2563.318	.016	.10293	.04279	.01903	.18683

Table 38 Support for hydrogen and climate change beliefs – Group statistics

	Do you believe climate change is happening now or will happen in the next 30 years?	N	Mean	Std. Deviation	Std. Error Mean
T1 Support for hydrogen	all other responses	736	5.0924	1.29768	.04783
	Yes, it is already happening.	2284	5.3857	1.23200	.02578
T2 Support for hydrogen	all other responses	736	5.4226	1.27540	.04701
	Yes, it is already happening.	2284	5.9891	1.06362	.02226
T3 Support for hydrogen	all other responses	571	5.5447	1.28392	.05373
	Yes, it is already happening.	1846	6.0677	1.04338	.02428

Table 39 Support for hydrogen and climate change beliefs – Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
T1 Support for hydrogen	Equal variances assumed	.487	.485	-5.544	3018	.000	-.29334	.05291	-.39708	-.18959
	Equal variances not assumed			-5.398	1191.598	.000	-.29334	.05434	-.39994	-.18673
T2 Support for hydrogen	Equal variances assumed	64.637	.000	-11.945	3018	.000	-.56650	.04742	-.65949	-.47351
	Equal variances not assumed			-10.891	1083.832	.000	-.56650	.05201	-.66856	-.46444
T3 Support for hydrogen - Recoded	Equal variances assumed	51.009	.000	-9.886	2415	.000	-.52306	.05291	-.62681	-.41931
	Equal variances not assumed			-8.871	816.137	.000	-.52306	.05896	-.63879	-.40732

Table 40 Support for hydrogen by innovator category – Descriptives

		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
						Lower Bound	Upper Bound		
T1 Support for hydrogen - Survey start	I closely follow new technology and am comfortable taking risks by being the first to purchase it.	286	6.1538	1.07480	.06355	6.0288	6.2789	1.00	7.00
	I see potential advantages in new technology and like to be among the first to use it.	763	5.7156	1.15088	.04166	5.6338	5.7974	1.00	7.00
	I am interested in new technology but prefer to wait for others to try it first.	1430	5.1503	1.17671	.03112	5.0893	5.2114	1.00	7.00
	I am not thrilled by new technology but might purchase after it has been on the market for some time.	344	4.8023	1.20804	.06513	4.6742	4.9304	1.00	7.00
	I have little affinity with new technology and do not like to buy it unless necessary.	197	4.6244	1.40372	.10001	4.4271	4.8216	1.00	7.00
	Total	3020	5.3142	1.25444	.02283	5.2695	5.3590	1.00	7.00
T2 Support for hydrogen - Before comms message	I closely follow new technology and am comfortable taking risks by being the first to purchase it.	286	6.3916	.92554	.05473	6.2839	6.4993	1.00	7.00
	I see potential advantages in new technology and like to be among the first to use it.	763	6.0944	1.01769	.03684	6.0220	6.1667	1.00	7.00
	I am interested in new technology but prefer to wait for others to try it first.	1430	5.7909	1.09343	.02891	5.7342	5.8476	1.00	7.00
	I am not thrilled by new technology but might purchase after it has been on the market for some time.	344	5.5407	1.15734	.06240	5.4180	5.6634	1.00	7.00
	I have little affinity with new technology and do not like to buy it unless necessary.	197	5.1015	1.56161	.11126	4.8821	5.3209	1.00	7.00
	Total	3020	5.8510	1.14485	.02083	5.8101	5.8918	1.00	7.00

Table 41 Support for hydrogen by innovator category – ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
T1 Support for hydrogen - Survey start	Between Groups	546.837	4	136.709	98.045	.000
	Within Groups	4203.951	3015	1.394		
	Total	4750.788	3019			
T2 Support for hydrogen - Before comms message	Between Groups	277.720	4	69.430	56.895	.000
	Within Groups	3679.227	3015	1.220		
	Total	3956.947	3019			

Table 42 Support for hydrogen by innovator category Time 1– multiple comparisons (Tukey HSD)

Dependent Variable – T1 Support for hydrogen – Survey start						
(I) When thinking of your response to new technology, which best describes you?	(J) When thinking of your response to new technology, which best describes you?	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
I closely follow new technology and am comfortable taking risks by being the first to purchase it.	I see potential advantages in new technology and like to be among the first to use it.	.43825*	.08187	.000	.2148	.6617
	I am interested in new technology but prefer to wait for others to try it first.	1.00350*	.07649	.000	.7947	1.2123
	I am not thrilled by new technology but might purchase after it has been on the market for some time.	1.35152*	.09449	.000	1.0936	1.6094
	I have little affinity with new technology and do not like to buy it unless necessary.	1.52948*	.10933	.000	1.2311	1.8279
I see potential advantages in new technology and like to be among the first to use it.	I closely follow new technology and am comfortable taking risks by being the first to purchase it.	-.43825*	.08187	.000	-.6617	-.2148
	I am interested in new technology but prefer to wait for others to try it first.	.56525*	.05294	.000	.4208	.7097
	I am not thrilled by new technology but might purchase after it has been on the market for some time.	.91327*	.07669	.000	.7040	1.1226
	I have little affinity with new technology and do not like to buy it unless necessary.	1.09123*	.09437	.000	.8337	1.3488
I am interested in new technology but prefer to wait for others to try it first.	I closely follow new technology and am comfortable taking risks by being the first to purchase it.	-1.00350*	.07649	.000	-1.2123	-.7947
	I see potential advantages in new technology and like to be among the first to use it.	-.56525*	.05294	.000	-.7097	-.4208
	I am not thrilled by new technology but might purchase after it has been on the market for some time.	.34802*	.07091	.000	.1545	.5416

Dependent Variable – T1 Support for hydrogen – Survey start						
(I) When thinking of your response to new technology, which best describes you?	(J) When thinking of your response to new technology, which best describes you?	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
	I have little affinity with new technology and do not like to buy it unless necessary.	.52598*	.08974	.000	.2811	.7709
I am not thrilled by new technology but might purchase after it has been on the market for some time.	I closely follow new technology and am comfortable taking risks by being the first to purchase it.	-1.35152*	.09449	.000	-1.6094	-1.0936
	I see potential advantages in new technology and like to be among the first to use it.	-.91327*	.07669	.000	-1.1226	-.7040
	I am interested in new technology but prefer to wait for others to try it first.	-.34802*	.07091	.000	-.5416	-.1545
	I have little affinity with new technology and do not like to buy it unless necessary.	.17796	.10550	.442	-.1100	.4659
I have little affinity with new technology and do not like to buy it unless necessary.	I closely follow new technology and am comfortable taking risks by being the first to purchase it.	-1.52948*	.10933	.000	-1.8279	-1.2311
	I see potential advantages in new technology and like to be among the first to use it.	-1.09123*	.09437	.000	-1.3488	-.8337
	I am interested in new technology but prefer to wait for others to try it first.	-.52598*	.08974	.000	-.7709	-.2811
	I am not thrilled by new technology but might purchase after it has been on the market for some time.	-.17796	.10550	.442	-.4659	.1100
*. The mean difference is significant at the 0.05 level.						

Table 43 Support for hydrogen by innovator category Time 2– multiple comparisons (Tukey HSD)

Dependent Variable – T2 Support for hydrogen – Before comms message						
(I) When thinking of your response to new technology, which best describes you?	(J) When thinking of your response to new technology, which best describes you?	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
I closely follow new technology and am comfortable taking risks by being the first to purchase it.	I see potential advantages in new technology and like to be among the first to use it.	.29724*	.07659	.001	.0882	.5063
	I am interested in new technology but prefer to wait for others to try it first.	.60070*	.07156	.000	.4054	.7960
	I am not thrilled by new technology but might purchase after it has been on the market for some time.	.85091*	.08840	.000	.6096	1.0922
	I have little affinity with new technology and do not like to buy it unless necessary.	1.29009*	.10228	.000	1.0109	1.5693
I see potential advantages in new technology and like to be among the first to use it.	I closely follow new technology and am comfortable taking risks by being the first to purchase it.	-.29724*	.07659	.001	-.5063	-.0882
	I am interested in new technology but prefer to wait for others to try it first.	.30346*	.04952	.000	.1683	.4386
	I am not thrilled by new technology but might purchase after it has been on the market for some time.	.55367*	.07174	.000	.3579	.7495
	I have little affinity with new technology and do not like to buy it unless necessary.	.99284*	.08828	.000	.7519	1.2338
I am interested in new technology but prefer to wait for others to try it first.	I closely follow new technology and am comfortable taking risks by being the first to purchase it.	-.60070*	.07156	.000	-.7960	-.4054
	I see potential advantages in new technology and like to be among the first to use it.	-.30346*	.04952	.000	-.4386	-.1683
	I am not thrilled by new technology but might purchase after it has been on the market for some time.	.25021*	.06634	.002	.0691	.4313
	I have little affinity with new technology and do not like to buy it unless necessary.	.68939*	.08395	.000	.4602	.9185
I am not thrilled by new technology but might purchase after it has been on the market for some time.	I closely follow new technology and am comfortable taking risks by being the first to purchase it.	-.85091*	.08840	.000	-1.0922	-.6096
	I see potential advantages in new technology and like to be among the first to use it.	-.55367*	.07174	.000	-.7495	-.3579

Dependent Variable – T2 Support for hydrogen – Before comms message						
(I) When thinking of your response to new technology, which best describes you?	(J) When thinking of your response to new technology, which best describes you?	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
	I am interested in new technology but prefer to wait for others to try it first.	-.25021*	.06634	.002	-.4313	-.0691
	I have little affinity with new technology and do not like to buy it unless necessary.	.43917*	.09870	.000	.1698	.7086
I have little affinity with new technology and do not like to buy it unless necessary.	I closely follow new technology and am comfortable taking risks by being the first to purchase it.	-1.29009*	.10228	.000	-1.5693	-1.0109
	I see potential advantages in new technology and like to be among the first to use it.	-.99284*	.08828	.000	-1.2338	-.7519
	I am interested in new technology but prefer to wait for others to try it first.	-.68939*	.08395	.000	-.9185	-.4602
	I am not thrilled by new technology but might purchase after it has been on the market for some time.	-.43917*	.09870	.000	-.7086	-.1698
*. The mean difference is significant at the 0.05 level.						

Table 44 Support for hydrogen by ability to pay electricity bills – Descriptives

		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
						Lower Bound	Upper Bound		
T1 Support for hydrogen - Survey start	Never a problem to pay	1781	5.3672	1.25328	.02970	5.3090	5.4255	1.00	7.00
	Sometimes a problem to pay	622	5.3376	1.21789	.04883	5.2417	5.4335	1.00	7.00
	Always struggle to pay	209	4.9856	1.36042	.09410	4.8001	5.1712	1.00	7.00
	Total	2612	5.3296	1.25756	.02461	5.2814	5.3779	1.00	7.00
T2 Support for hydrogen - Before comms message	Never a problem to pay	1781	5.9085	1.10466	.02618	5.8571	5.9598	1.00	7.00
	Sometimes a problem to pay	622	5.8280	1.11251	.04461	5.7404	5.9156	1.00	7.00
	Always struggle to pay	209	5.5598	1.43027	.09893	5.3648	5.7549	1.00	7.00
	Total	2612	5.8614	1.13942	.02229	5.8177	5.9051	1.00	7.00

Table 45 Support for hydrogen by ability to pay electricity bills – ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
T1 Support for hydrogen - Survey start	Between Groups	27.285	2	13.642	8.677	.000
	Within Groups	4101.902	2609	1.572		
	Total	4129.186	2611			
T2 Support for hydrogen - Before comms message	Between Groups	23.652	2	11.826	9.166	.000
	Within Groups	3366.178	2609	1.290		
	Total	3389.830	2611			

Table 46 Support for hydrogen by ability to pay electricity bills – multiple comparisons Tukey HSD

Dependent Variable	(I) BillPayElect_3groups	(J) BillPayElect_3groups	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
T1 Support for hydrogen - Survey start	Never a problem to pay	Sometimes a problem to pay	.02959	.05840	.868	-.1074	.1665
		Always struggle to pay	.38156*	.09168	.000	.1666	.5966
	Sometimes a problem to pay	Never a problem to pay	-.02959	.05840	.868	-.1665	.1074
		Always struggle to pay	.35197*	.10025	.001	.1169	.5871
	Always struggle to pay	Never a problem to pay	-.38156*	.09168	.000	-.5966	-.1666
		Sometimes a problem to pay	-.35197*	.10025	.001	-.5871	-.1169
T2 Support for hydrogen - Before comms message	Never a problem to pay	Sometimes a problem to pay	.08050	.05290	.281	-.0436	.2046
		Always struggle to pay	.34867*	.08305	.000	.1539	.5434
	Sometimes a problem to pay	Never a problem to pay	-.08050	.05290	.281	-.2046	.0436
		Always struggle to pay	.26817*	.09082	.009	.0552	.4811
	Always struggle to pay	Never a problem to pay	-.34867*	.08305	.000	-.5434	-.1539
		Sometimes a problem to pay	-.26817*	.09082	.009	-.4811	-.0552
*. The mean difference is significant at the 0.05 level.							

Table 47 Support for hydrogen by ability to pay gas bills – Descriptives

		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
						Lower Bound	Upper Bound		
T1 Support for hydrogen - Survey start	Never a problem to pay	1137	5.4274	1.24055	.03679	5.3553	5.4996	1.00	7.00
	Sometimes a problem to pay	339	5.3805	1.18160	.06418	5.2543	5.5068	1.00	7.00
	Always struggle to pay	97	5.0722	1.40125	.14227	4.7898	5.3546	1.00	7.00
	Total	1573	5.3954	1.24075	.03128	5.3341	5.4568	1.00	7.00
T2 Support for hydrogen - Before comms message	Never a problem to pay	1137	5.9464	1.07128	.03177	5.8840	6.0087	1.00	7.00
	Sometimes a problem to pay	339	5.8614	1.09394	.05941	5.7445	5.9782	1.00	7.00
	Always struggle to pay	97	5.5979	1.44813	.14704	5.3061	5.8898	1.00	7.00
	Total	1573	5.9065	1.10552	.02787	5.8519	5.9612	1.00	7.00

Table 48 Support for hydrogen by ability to pay gas bills – ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
T1 Support for hydrogen	Between Groups	11.377	2	5.688	3.708	.025
	Within Groups	2408.670	1570	1.534		
	Total	2420.047	1572			
T2 Support for hydrogen	Between Groups	11.732	2	5.866	4.823	.008
	Within Groups	1909.531	1570	1.216		
	Total	1921.263	1572			

Table 49 Support for hydrogen by ability to pay gas bills (Post Hoc Tests) –Multiple comparisons (Tukey HSD)

Dependent Variable	(I) BillPayGas_3groups	(J) BillPayGas_3groups	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
T1 Support for hydrogen	Never a problem to pay	Sometimes a problem to pay	.04691	.07665	.814	-.1329	.2267
		Always struggle to pay	.35528*	.13102	.019	.0479	.6626
	Sometimes a problem to pay	Never a problem to pay	-.04691	.07665	.814	-.2267	.1329
		Always struggle to pay	.30837	.14263	.078	-.0262	.6430
	Always struggle to pay	Never a problem to pay	-.35528*	.13102	.019	-.6626	-.0479
		Sometimes a problem to pay	-.30837	.14263	.078	-.6430	.0262
T2 Support for hydrogen	Never a problem to pay	Sometimes a problem to pay	.08499	.06825	.427	-.0751	.2451
		Always struggle to pay	.34841*	.11666	.008	.0747	.6221
	Sometimes a problem to pay	Never a problem to pay	-.08499	.06825	.427	-.2451	.0751
		Always struggle to pay	.26342	.12699	.096	-.0345	.5613
	Always struggle to pay	Never a problem to pay	-.34841*	.11666	.008	-.6221	-.0747
		Sometimes a problem to pay	-.26342	.12699	.096	-.5613	.0345
*. The mean difference is significant at the 0.05 level.							

Table 50 Message effects on support for hydrogen - Descriptives

		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
						Lower Bound	Upper Bound		
T1 Support for hydrogen	Blending H2 is a first step	612	5.2484	1.26662	.05120	5.1478	5.3489	1.00	7.00
	Economic benefits	602	5.3256	1.26661	.05162	5.2242	5.4270	1.00	7.00
	100% green H2	604	5.3560	1.22743	.04994	5.2579	5.4540	1.00	7.00
	Govt/ind making hydrogen affordable	599	5.3406	1.24070	.05069	5.2410	5.4401	1.00	7.00
	Control group (no message)	603	5.3018	1.27137	.05177	5.2001	5.4035	1.00	7.00
	Total	3020	5.3142	1.25444	.02283	5.2695	5.3590	1.00	7.00
T2 Support for hydrogen	Blending H2 is a first step	612	5.7990	1.18382	.04785	5.7050	5.8930	1.00	7.00
	Economic benefits	602	5.9153	1.11164	.04531	5.8263	6.0043	1.00	7.00
	100% green H2	604	5.8725	1.15268	.04690	5.7804	5.9646	1.00	7.00
	Govt/ind making hydrogen affordable	599	5.7997	1.14059	.04660	5.7081	5.8912	1.00	7.00
	Control group (no message)	603	5.8690	1.13290	.04614	5.7784	5.9596	1.00	7.00
	Total	3020	5.8510	1.14485	.02083	5.8101	5.8918	1.00	7.00
T3 Support for hydrogen - Final (Post message/T2 for Control group)	Blending H2 is a first step	612	5.76	1.167	.047	5.67	5.85	1	7
	Economic benefits	602	6.03	1.101	.045	5.94	6.12	1	7
	100% green H2	604	6.14	1.101	.045	6.05	6.23	1	7
	Govt/ind making hydrogen affordable	599	5.85	1.099	.045	5.77	5.94	1	7
	Control group (no message)	603	5.87	1.133	.046	5.78	5.96	1	7
	Total	3020	5.93	1.128	.021	5.89	5.97	1	7

Table 51. Message effects on support for hydrogen - Multiple Comparisons (Tukey HSD)

Dependent Variable	(I) Message stream	(J) Message stream	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
T1 Support for hydrogen	Blending H2 is a first step	Economic benefits	-.07722	.07202	.821	-.2738	.1194
		100% green H2	-.10759	.07196	.566	-.3040	.0888
		Govt/ind making hydrogen affordable	-.09220	.07212	.705	-.2890	.1046
		Control group (no message)	-.05346	.07199	.946	-.2500	.1430
	Economic benefits	Blending H2 is a first step	.07722	.07202	.821	-.1194	.2738
		100% green H2	-.03038	.07226	.993	-.2276	.1669
		Govt/ind making hydrogen affordable	-.01499	.07241	1.000	-.2126	.1827
		Control group (no message)	.02376	.07229	.997	-.1736	.2211
	100% green H2	Blending H2 is a first step	.10759	.07196	.566	-.0888	.3040
		Economic benefits	.03038	.07226	.993	-.1669	.2276
		Govt/ind making hydrogen affordable	.01539	.07235	1.000	-.1821	.2129
		Control group (no message)	.05414	.07223	.945	-.1430	.2513
	Govt/ind making hydrogen affordable	Blending H2 is a first step	.09220	.07212	.705	-.1046	.2890
		Economic benefits	.01499	.07241	1.000	-.1827	.2126
		100% green H2	-.01539	.07235	1.000	-.2129	.1821
		Control group (no message)	.03874	.07238	.984	-.1588	.2363
	Control group (no message)	Blending H2 is a first step	.05346	.07199	.946	-.1430	.2500
		Economic benefits	-.02376	.07229	.997	-.2211	.1736
		100% green H2	-.05414	.07223	.945	-.2513	.1430
		Govt/ind making hydrogen affordable	-.03874	.07238	.984	-.2363	.1588

Dependent Variable	(I) Message stream	(J) Message stream	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
T2 Support for hydrogen	Blending H2 is a first step	Economic benefits	-.11626	.06571	.392	-.2956	.0631
		100% green H2	-.07350	.06566	.796	-.2527	.1057
		Govt/ind making hydrogen affordable	-.00065	.06579	1.000	-.1802	.1789
		Control group (no message)	-.06997	.06568	.824	-.2492	.1093
	Economic benefits	Blending H2 is a first step	.11626	.06571	.392	-.0631	.2956
		100% green H2	.04277	.06593	.967	-.1372	.2227
		Govt/ind making hydrogen affordable	.11562	.06606	.403	-.0647	.2959
		Control group (no message)	.04629	.06595	.956	-.1337	.2263
	100% green H2	Blending H2 is a first step	.07350	.06566	.796	-.1057	.2527
		Economic benefits	-.04277	.06593	.967	-.2227	.1372
		Govt/ind making hydrogen affordable	.07285	.06601	.805	-.1073	.2530
		Control group (no message)	.00353	.06590	1.000	-.1763	.1834
	Govt/ind making hydrogen affordable	Blending H2 is a first step	.00065	.06579	1.000	-.1789	.1802
		Economic benefits	-.11562	.06606	.403	-.2959	.0647
		100% green H2	-.07285	.06601	.805	-.2530	.1073
		Control group (no message)	-.06932	.06604	.832	-.2496	.1109
	Control group (no message)	Blending H2 is a first step	.06997	.06568	.824	-.1093	.2492
		Economic benefits	-.04629	.06595	.956	-.2263	.1337
		100% green H2	-.00353	.06590	1.000	-.1834	.1763
		Govt/ind making hydrogen affordable	.06932	.06604	.832	-.1109	.2496

Dependent Variable	(I) Message stream	(J) Message stream	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
T3 Support for hydrogen - Final (Post message/T2 for Control group)	Blending H2 is a first step	Economic benefits	-.270*	.064	.000	-.45	-.09
		100% green H2	-.379*	.064	.000	-.55	-.20
		Govt/ind making hydrogen affordable	-.097	.064	.563	-.27	.08
		Control group (no message)	-.111	.064	.420	-.29	.06
	Economic benefits	Blending H2 is a first step	.270*	.064	.000	.09	.45
		100% green H2	-.109	.065	.439	-.29	.07
		Govt/ind making hydrogen affordable	.173	.065	.057	.00	.35
		Control group (no message)	.159	.065	.099	-.02	.34
	100% green H2	Blending H2 is a first step	.379*	.064	.000	.20	.55
		Economic benefits	.109	.065	.439	-.07	.29
		Govt/ind making hydrogen affordable	.283*	.065	.000	.11	.46
		Control group (no message)	.268*	.065	.000	.09	.44
	Govt/ind making hydrogen affordable	Blending H2 is a first step	.097	.064	.563	-.08	.27
		Economic benefits	-.173	.065	.057	-.35	.00
		100% green H2	-.283*	.065	.000	-.46	-.11
		Control group (no message)	-.014	.065	.999	-.19	.16
	Control group (no message)	Blending H2 is a first step	.111	.064	.420	-.06	.29
		Economic benefits	-.159	.065	.099	-.34	.02
		100% green H2	-.268*	.065	.000	-.44	-.09
		Govt/ind making hydrogen affordable	.014	.065	.999	-.16	.19

*. The mean difference is significant at the 0.05 level.

Table 52 Support for hydrogen export and facilities by political party preference - Descriptives

Statement: I support the idea of Australia exporting hydrogen

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Liberal/National	613	5.69	1.496	.060	5.57	5.80	1	7
Labor	497	5.55	1.621	.073	5.41	5.70	1	7
Greens	194	5.37	1.708	.123	5.12	5.61	1	7
Other	209	5.27	1.598	.111	5.05	5.49	1	7
Total	1513	5.54	1.586	.041	5.46	5.62	1	7

Table 53 Support for hydrogen export and facilities by political party preference – Multiple Comparisons (Games-Howell)

(I) If there would be federal elections on next Sunday, which party would you vote for	(J) If there would be federal elections on next Sunday, which party would you vote for	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Liberal/National	Labor	.132	.095	.503	-.11	.38
	Greens	.319	.137	.093	-.03	.67
	Other	.417*	.126	.006	.09	.74
Labor	Liberal/National	-.132	.095	.503	-.38	.11
	Greens	.187	.143	.555	-.18	.56
	Other	.285	.132	.137	-.06	.63
Greens	Liberal/National	-.319	.137	.093	-.67	.03
	Labor	-.187	.143	.555	-.56	.18
	Other	.098	.165	.934	-.33	.52
Other	Liberal/National	-.417*	.126	.006	-.74	-.09
	Labor	-.285	.132	.137	-.63	.06
	Greens	-.098	.165	.934	-.52	.33

*. The mean difference is significant at the 0.05 level.

Table 54 Support for hydrogen export facility being built nearby by political party preference - Descriptives

Statement: I support the idea of a hydrogen export facility being built near me

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Liberal/National	613	5.69	1.496	.060	5.57	5.80	1	7
Labor	497	5.55	1.621	.073	5.41	5.70	1	7
Greens	194	5.37	1.708	.123	5.12	5.61	1	7
Other	209	5.27	1.598	.111	5.05	5.49	1	7
Total	1513	5.54	1.586	.041	5.46	5.62	1	7

Table 55 Support for hydrogen export facility being built nearby by political party preference – Multiple Comparisons (Tukey HSD)

Dependent Variable - Support for hydrogen export facility being built nearby						
(I) If there would be federal elections on next Sunday, which party would you vote for	(J) If there would be federal elections on next Sunday, which party would you vote for	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Liberal/National	Labor	-.035	.103	.986	-.30	.23
	Greens	.096	.141	.903	-.27	.46
	Other	.581*	.137	.000	.23	.93
Labor	Liberal/National	.035	.103	.986	-.23	.30
	Greens	.132	.144	.799	-.24	.50
	Other	.616*	.141	.000	.25	.98
Greens	Liberal/National	-.096	.141	.903	-.46	.27
	Labor	-.132	.144	.799	-.50	.24
	Other	.484*	.170	.023	.05	.92
Other	Liberal/National	-.581*	.137	.000	-.93	-.23
	Labor	-.616*	.141	.000	-.98	-.25
	Greens	-.484*	.170	.023	-.92	-.05

*. The mean difference is significant at the 0.05 level.

Table 56 Multiple comparisons between States of agreement with Hydrogen – (Tukey HSD)

(I) State	(J) State	Mean Difference (I-J)	Std. Error	Sig.	Lower Bound	Upper Bound
NSW	VIC	-.023	.079	1.000	-.26	.22
	QLD	.046	.086	.999	-.22	.31
	SA	-.200	.110	.604	-.53	.13
	WA	-.208	.109	.546	-.54	.12
	TAS	.001	.208	1.000	-.63	.63
	NT	-.384	.313	.923	-1.33	.57
	ACT	-.277	.224	.921	-.96	.40
VIC	NSW	.023	.079	1.000	-.22	.26
	QLD	.069	.089	.994	-.20	.34
	SA	-.177	.112	.763	-.52	.16
	WA	-.185	.111	.714	-.52	.15
	TAS	.024	.209	1.000	-.61	.66
	NT	-.361	.314	.945	-1.31	.59
	ACT	-.254	.226	.951	-.94	.43
QLD	NSW	-.046	.086	.999	-.31	.22
	VIC	-.069	.089	.994	-.34	.20
	SA	-.246	.117	.414	-.60	.11
	WA	-.254	.116	.363	-.61	.10
	TAS	-.045	.212	1.000	-.69	.60
	NT	-.431	.315	.873	-1.39	.53
	ACT	-.323	.228	.849	-1.02	.37
SA	NSW	.200	.110	.604	-.13	.53
	VIC	.177	.112	.763	-.16	.52
	QLD	.246	.117	.414	-.11	.60
	WA	-.008	.135	1.000	-.42	.40
	TAS	.201	.222	.986	-.47	.88
	NT	-.184	.323	.999	-1.16	.80
	ACT	-.077	.238	1.000	-.80	.65
WA	NSW	.208	.109	.546	-.12	.54
	VIC	.185	.111	.714	-.15	.52
	QLD	.254	.116	.363	-.10	.61
	SA	.008	.135	1.000	-.40	.42
	TAS	.209	.222	.982	-.47	.88
	NT	-.177	.322	.999	-1.16	.80
	ACT	-.069	.238	1.000	-.79	.65

(I) State	(J) State	Mean Difference (I-J)	Std. Error	Sig.	Lower Bound	Upper Bound
TAS	NSW	-.001	.208	1.000	-.63	.63
	VIC	-.024	.209	1.000	-.66	.61
	QLD	.045	.212	1.000	-.60	.69
	SA	-.201	.222	.986	-.88	.47
	WA	-.209	.222	.982	-.88	.47
	NT	-.385	.368	.967	-1.50	.73
	ACT	-.278	.296	.982	-1.18	.62
NT	NSW	.384	.313	.923	-.57	1.33
	VIC	.361	.314	.945	-.59	1.31
	QLD	.431	.315	.873	-.53	1.39
	SA	.184	.323	.999	-.80	1.16
	WA	.177	.322	.999	-.80	1.16
	TAS	.385	.368	.967	-.73	1.50
	ACT	.107	.377	1.000	-1.04	1.25
ACT	NSW	.277	.224	.921	-.40	.96
	VIC	.254	.226	.951	-.43	.94
	QLD	.323	.228	.849	-.37	1.02
	SA	.077	.238	1.000	-.65	.80
	WA	.069	.238	1.000	-.65	.79
	TAS	.278	.296	.982	-.62	1.18
	NT	-.107	.377	1.000	-1.25	1.04

Table 57. Multiple comparisons between States of agreement with Coal – (Tukey HSD)

(I) State	(J) State	Mean Difference (I-J)	Std. Error	Sig.	Lower Bound	Upper Bound
NSW	VIC	.196	.128	.788	-.19	.58
	QLD	-.009	.139	1.000	-.43	.41
	SA	.344	.177	.516	-.19	.88
	WA	.636*	.175	.007	.10	1.17
	TAS	.306	.334	.985	-.71	1.32
	NT	.588	.503	.941	-.94	2.12
	ACT	-.019	.361	1.000	-1.12	1.08
VIC	NSW	-.196	.128	.788	-.58	.19
	QLD	-.205	.144	.845	-.64	.23
	SA	.148	.181	.992	-.40	.70
	WA	.440	.179	.216	-.10	.98
	TAS	.110	.337	1.000	-.91	1.13
	NT	.392	.505	.994	-1.14	1.92
	ACT	-.215	.363	.999	-1.32	.89
QLD	NSW	.009	.139	1.000	-.41	.43
	VIC	.205	.144	.845	-.23	.64
	SA	.354	.189	.569	-.22	.93
	WA	.645*	.187	.014	.08	1.21
	TAS	.315	.341	.984	-.72	1.35
	NT	.597	.508	.939	-.94	2.14
	ACT	-.010	.367	1.000	-1.12	1.10
SA	NSW	-.344	.177	.516	-.88	.19
	VIC	-.148	.181	.992	-.70	.40
	QLD	-.354	.189	.569	-.93	.22
	WA	.292	.217	.882	-.37	.95
	TAS	-.038	.358	1.000	-1.12	1.05
	NT	.243	.519	1.000	-1.33	1.82
	ACT	-.364	.383	.981	-1.53	.80
WA	NSW	-.636*	.175	.007	-1.17	-.10
	VIC	-.440	.179	.216	-.98	.10
	QLD	-.645*	.187	.014	-1.21	-.08
	SA	-.292	.217	.882	-.95	.37
	TAS	-.330	.357	.984	-1.41	.75
	NT	-.048	.519	1.000	-1.62	1.53
	ACT	-.655	.382	.678	-1.82	.51

(I) State	(J) State	Mean Difference (I-J)	Std. Error	Sig.	Lower Bound	Upper Bound
TAS	NSW	-.306	.334	.985	-1.32	.71
	VIC	-.110	.337	1.000	-1.13	.91
	QLD	-.315	.341	.984	-1.35	.72
	SA	.038	.358	1.000	-1.05	1.12
	WA	.330	.357	.984	-.75	1.41
	NT	.281	.592	1.000	-1.52	2.08
	ACT	-.326	.477	.997	-1.77	1.12
NT	NSW	-.588	.503	.941	-2.12	.94
	VIC	-.392	.505	.994	-1.92	1.14
	QLD	-.597	.508	.939	-2.14	.94
	SA	-.243	.519	1.000	-1.82	1.33
	WA	.048	.519	1.000	-1.53	1.62
	TAS	-.281	.592	1.000	-2.08	1.52
	ACT	-.607	.608	.975	-2.45	1.24
ACT	NSW	.019	.361	1.000	-1.08	1.12
	VIC	.215	.363	.999	-.89	1.32
	QLD	.010	.367	1.000	-1.10	1.12
	SA	.364	.383	.981	-.80	1.53
	WA	.655	.382	.678	-.51	1.82
	TAS	.326	.477	.997	-1.12	1.77
	NT	.607	.608	.975	-1.24	2.45

Table 58. Multiple comparisons between States of agreement with Gas – (Tukey HSD)

(I) State	(J) State	Mean Difference (I-J)	Std. Error	Sig.	Lower Bound	Upper Bound
NSW	VIC	.003	.106	1.000	-.32	.33
	QLD	.093	.116	.993	-.26	.44
	SA	-.186	.147	.912	-.63	.26
	WA	.106	.146	.996	-.34	.55
	TAS	.091	.279	1.000	-.75	.94
	NT	.474	.419	.950	-.80	1.75
	ACT	-.062	.301	1.000	-.98	.85
VIC	NSW	-.003	.106	1.000	-.33	.32
	QLD	.090	.120	.995	-.27	.45
	SA	-.189	.150	.915	-.65	.27
	WA	.103	.149	.997	-.35	.56
	TAS	.088	.280	1.000	-.76	.94
	NT	.471	.421	.953	-.81	1.75
	ACT	-.065	.303	1.000	-.98	.85
QLD	NSW	-.093	.116	.993	-.44	.26
	VIC	-.090	.120	.995	-.45	.27
	SA	-.279	.157	.637	-.76	.20
	WA	.013	.156	1.000	-.46	.49
	TAS	-.002	.284	1.000	-.86	.86
	NT	.381	.423	.986	-.90	1.66
	ACT	-.155	.306	1.000	-1.08	.77
SA	NSW	.186	.147	.912	-.26	.63
	VIC	.189	.150	.915	-.27	.65
	QLD	.279	.157	.637	-.20	.76
	WA	.292	.181	.741	-.26	.84
	TAS	.276	.298	.983	-.63	1.18
	NT	.660	.433	.794	-.65	1.97
	ACT	.124	.319	1.000	-.84	1.09
WA	NSW	-.106	.146	.996	-.55	.34
	VIC	-.103	.149	.997	-.56	.35
	QLD	-.013	.156	1.000	-.49	.46
	SA	-.292	.181	.741	-.84	.26
	TAS	-.015	.298	1.000	-.92	.89
	NT	.368	.432	.990	-.94	1.68
	ACT	-.168	.319	1.000	-1.14	.80

(I) State	(J) State	Mean Difference (I-J)	Std. Error	Sig.	Lower Bound	Upper Bound
TAS	NSW	-.091	.279	1.000	-.94	.75
	VIC	-.088	.280	1.000	-.94	.76
	QLD	.002	.284	1.000	-.86	.86
	SA	-.276	.298	.983	-1.18	.63
	WA	.015	.298	1.000	-.89	.92
	NT	.383	.493	.994	-1.11	1.88
	ACT	-.153	.397	1.000	-1.36	1.05
NT	NSW	-.474	.419	.950	-1.75	.80
	VIC	-.471	.421	.953	-1.75	.81
	QLD	-.381	.423	.986	-1.66	.90
	SA	-.660	.433	.794	-1.97	.65
	WA	-.368	.432	.990	-1.68	.94
	TAS	-.383	.493	.994	-1.88	1.11
	ACT	-.536	.506	.965	-2.07	1.00
ACT	NSW	.062	.301	1.000	-.85	.98
	VIC	.065	.303	1.000	-.85	.98
	QLD	.155	.306	1.000	-.77	1.08
	SA	-.124	.319	1.000	-1.09	.84
	WA	.168	.319	1.000	-.80	1.14
	TAS	.153	.397	1.000	-1.05	1.36
	NT	.536	.506	.965	-1.00	2.07

Table 59. Multiple comparisons between States of agreement with Gas or coal with carbon capture and storage – (Tukey HSD)

(I) State	(J) State	Mean Difference (I-J)	Std. Error	Sig.	Lower Bound	Upper Bound
NSW	VIC	.038	.113	1.000	-.31	.38
	QLD	-.004	.123	1.000	-.38	.37
	SA	-.006	.157	1.000	-.48	.47
	WA	.188	.155	.929	-.28	.66
	TAS	.016	.297	1.000	-.88	.92
	NT	.300	.446	.998	-1.06	1.66
	ACT	.193	.320	.999	-.78	1.16
VIC	NSW	-.038	.113	1.000	-.38	.31
	QLD	-.043	.127	1.000	-.43	.34
	SA	-.044	.160	1.000	-.53	.44
	WA	.150	.159	.982	-.33	.63
	TAS	-.022	.298	1.000	-.93	.88
	NT	.262	.448	.999	-1.10	1.62
	ACT	.155	.322	1.000	-.82	1.13
QLD	NSW	.004	.123	1.000	-.37	.38
	VIC	.043	.127	1.000	-.34	.43
	SA	-.002	.167	1.000	-.51	.51
	WA	.192	.166	.943	-.31	.70
	TAS	.021	.302	1.000	-.90	.94
	NT	.304	.450	.998	-1.06	1.67
	ACT	.197	.326	.999	-.79	1.19
SA	NSW	.006	.157	1.000	-.47	.48
	VIC	.044	.160	1.000	-.44	.53
	QLD	.002	.167	1.000	-.51	.51
	WA	.194	.192	.973	-.39	.78
	TAS	.022	.317	1.000	-.94	.99
	NT	.306	.461	.998	-1.09	1.70
	ACT	.199	.340	.999	-.83	1.23
WA	NSW	-.188	.155	.929	-.66	.28
	VIC	-.150	.159	.982	-.63	.33
	QLD	-.192	.166	.943	-.70	.31
	SA	-.194	.192	.973	-.78	.39
	TAS	-.172	.317	.999	-1.13	.79
	NT	.112	.460	1.000	-1.28	1.51
	ACT	.005	.339	1.000	-1.02	1.03

(I) State	(J) State	Mean Difference (I-J)	Std. Error	Sig.	Lower Bound	Upper Bound
TAS	NSW	-.016	.297	1.000	-.92	.88
	VIC	.022	.298	1.000	-.88	.93
	QLD	-.021	.302	1.000	-.94	.90
	SA	-.022	.317	1.000	-.99	.94
	WA	.172	.317	.999	-.79	1.13
	NT	.284	.525	.999	-1.31	1.88
	ACT	.176	.423	1.000	-1.11	1.46
NT	NSW	-.300	.446	.998	-1.66	1.06
	VIC	-.262	.448	.999	-1.62	1.10
	QLD	-.304	.450	.998	-1.67	1.06
	SA	-.306	.461	.998	-1.70	1.09
	WA	-.112	.460	1.000	-1.51	1.28
	TAS	-.284	.525	.999	-1.88	1.31
	ACT	-.107	.539	1.000	-1.74	1.53
ACT	NSW	-.193	.320	.999	-1.16	.78
	VIC	-.155	.322	1.000	-1.13	.82
	QLD	-.197	.326	.999	-1.19	.79
	SA	-.199	.340	.999	-1.23	.83
	WA	-.005	.339	1.000	-1.03	1.02
	TAS	-.176	.423	1.000	-1.46	1.11
	NT	.107	.539	1.000	-1.53	1.74

Table 60. Multiple comparisons between States of agreement with Wind – (Tukey HSD)

(I) State	(J) State	Mean Difference (I-J)	Std. Error	Sig.	Lower Bound	Upper Bound
NSW	VIC	-.055	.089	.999	-.32	.22
	QLD	.068	.097	.997	-.23	.36
	SA	-.203	.123	.724	-.58	.17
	WA	-.359	.122	.067	-.73	.01
	TAS	-.237	.234	.972	-.95	.47
	NT	-.594	.352	.694	-1.66	.47
	ACT	-.344	.252	.873	-1.11	.42
VIC	NSW	.055	.089	.999	-.22	.32
	QLD	.122	.100	.927	-.18	.43
	SA	-.148	.126	.939	-.53	.23
	WA	-.304	.125	.228	-.68	.08
	TAS	-.183	.235	.994	-.90	.53
	NT	-.540	.353	.791	-1.61	.53
	ACT	-.290	.254	.947	-1.06	.48
QLD	NSW	-.068	.097	.997	-.36	.23
	VIC	-.122	.100	.927	-.43	.18
	SA	-.270	.132	.446	-.67	.13
	WA	-.426*	.131	.025	-.82	-.03
	TAS	-.305	.238	.906	-1.03	.42
	NT	-.662	.355	.574	-1.74	.41
	ACT	-.412	.256	.747	-1.19	.37
SA	NSW	.203	.123	.724	-.17	.58
	VIC	.148	.126	.939	-.23	.53
	QLD	.270	.132	.446	-.13	.67
	WA	-.156	.151	.970	-.62	.30
	TAS	-.034	.250	1.000	-.79	.72
	NT	-.392	.363	.961	-1.49	.71
	ACT	-.142	.268	1.000	-.95	.67
WA	NSW	.359	.122	.067	-.01	.73
	VIC	.304	.125	.228	-.08	.68
	QLD	.426*	.131	.025	.03	.82
	SA	.156	.151	.970	-.30	.62
	TAS	.122	.250	1.000	-.64	.88
	NT	-.236	.362	.998	-1.34	.86
	ACT	.014	.267	1.000	-.80	.83

(I) State	(J) State	Mean Difference (I-J)	Std. Error	Sig.	Lower Bound	Upper Bound
TAS	NSW	.237	.234	.972	-.47	.95
	VIC	.183	.235	.994	-.53	.90
	QLD	.305	.238	.906	-.42	1.03
	SA	.034	.250	1.000	-.72	.79
	WA	-.122	.250	1.000	-.88	.64
	NT	-.357	.413	.989	-1.61	.90
	ACT	-.107	.333	1.000	-1.12	.90
NT	NSW	.594	.352	.694	-.47	1.66
	VIC	.540	.353	.791	-.53	1.61
	QLD	.662	.355	.574	-.41	1.74
	SA	.392	.363	.961	-.71	1.49
	WA	.236	.362	.998	-.86	1.34
	TAS	.357	.413	.989	-.90	1.61
	ACT	.250	.424	.999	-1.04	1.54
ACT	NSW	.344	.252	.873	-.42	1.11
	VIC	.290	.254	.947	-.48	1.06
	QLD	.412	.256	.747	-.37	1.19
	SA	.142	.268	1.000	-.67	.95
	WA	-.014	.267	1.000	-.83	.80
	TAS	.107	.333	1.000	-.90	1.12
	NT	-.250	.424	.999	-1.54	1.04

Table 61. Multiple comparisons between States of agreement with Solar PV - (Tukey HSD)

(I) State	(J) State	Mean Difference (I-J)	Std. Error	Sig.	Lower Bound	Upper Bound
NSW	VIC	-.044	.083	1.000	-.30	.21
	QLD	-.081	.091	.987	-.36	.19
	SA	-.149	.116	.902	-.50	.20
	WA	-.387*	.115	.017	-.73	-.04
	TAS	-.363	.219	.714	-1.03	.30
	NT	-.711	.329	.377	-1.71	.29
	ACT	-.247	.236	.967	-.96	.47
VIC	NSW	.044	.083	1.000	-.21	.30
	QLD	-.037	.094	1.000	-.32	.25
	SA	-.105	.118	.987	-.46	.25
	WA	-.343	.117	.069	-.70	.01
	TAS	-.319	.220	.835	-.99	.35
	NT	-.667	.330	.469	-1.67	.34
	ACT	-.203	.238	.990	-.92	.52
QLD	NSW	.081	.091	.987	-.19	.36
	VIC	.037	.094	1.000	-.25	.32
	SA	-.068	.123	.999	-.44	.31
	WA	-.306	.123	.198	-.68	.07
	TAS	-.282	.223	.912	-.96	.40
	NT	-.630	.332	.553	-1.64	.38
	ACT	-.166	.240	.997	-.89	.56
SA	NSW	.149	.116	.902	-.20	.50
	VIC	.105	.118	.987	-.25	.46
	QLD	.068	.123	.999	-.31	.44
	WA	-.238	.142	.703	-.67	.19
	TAS	-.214	.234	.985	-.92	.50
	NT	-.562	.340	.717	-1.59	.47
	ACT	-.098	.251	1.000	-.86	.66
WA	NSW	.387*	.115	.017	.04	.73
	VIC	.343	.117	.069	-.01	.70
	QLD	.306	.123	.198	-.07	.68
	SA	.238	.142	.703	-.19	.67
	TAS	.024	.234	1.000	-.69	.73
	NT	-.324	.340	.980	-1.35	.71
	ACT	.140	.250	.999	-.62	.90

(I) State	(J) State	Mean Difference (I-J)	Std. Error	Sig.	Lower Bound	Upper Bound
TAS	NSW	.363	.219	.714	-.30	1.03
	VIC	.319	.220	.835	-.35	.99
	QLD	.282	.223	.912	-.40	.96
	SA	.214	.234	.985	-.50	.92
	WA	-.024	.234	1.000	-.73	.69
	NT	-.348	.387	.986	-1.52	.83
	ACT	.116	.312	1.000	-.83	1.06
NT	NSW	.711	.329	.377	-.29	1.71
	VIC	.667	.330	.469	-.34	1.67
	QLD	.630	.332	.553	-.38	1.64
	SA	.562	.340	.717	-.47	1.59
	WA	.324	.340	.980	-.71	1.35
	TAS	.348	.387	.986	-.83	1.52
	ACT	.464	.397	.941	-.74	1.67
ACT	NSW	.247	.236	.967	-.47	.96
	VIC	.203	.238	.990	-.52	.92
	QLD	.166	.240	.997	-.56	.89
	SA	.098	.251	1.000	-.66	.86
	WA	-.140	.250	.999	-.90	.62
	TAS	-.116	.312	1.000	-1.06	.83
	NT	-.464	.397	.941	-1.67	.74

Table 62. Multiple comparisons between States of agreement with Oil (e.g. diesel/petrol for transport) – (Tukey HSD)

(I) State	(J) State	Mean Difference (I-J)	Std. Error	Sig.	Lower Bound	Upper Bound
NSW	VIC	.051	.120	1.000	-.31	.41
	QLD	.027	.130	1.000	-.37	.42
	SA	.163	.166	.977	-.34	.67
	WA	.306	.164	.579	-.19	.80
	TAS	-.103	.313	1.000	-1.05	.85
	NT	.438	.472	.983	-.99	1.87
	ACT	-.205	.339	.999	-1.23	.82
VIC	NSW	-.051	.120	1.000	-.41	.31
	QLD	-.024	.135	1.000	-.43	.38
	SA	.111	.169	.998	-.40	.63
	WA	.254	.168	.801	-.26	.76
	TAS	-.155	.315	1.000	-1.11	.80
	NT	.386	.473	.992	-1.05	1.82
	ACT	-.257	.340	.995	-1.29	.78
QLD	NSW	-.027	.130	1.000	-.42	.37
	VIC	.024	.135	1.000	-.38	.43
	SA	.136	.177	.995	-.40	.67
	WA	.278	.176	.760	-.25	.81
	TAS	-.131	.320	1.000	-1.10	.84
	NT	.410	.476	.989	-1.03	1.86
	ACT	-.232	.344	.998	-1.28	.81
SA	NSW	-.163	.166	.977	-.67	.34
	VIC	-.111	.169	.998	-.63	.40
	QLD	-.136	.177	.995	-.67	.40
	WA	.143	.203	.997	-.47	.76
	TAS	-.266	.336	.993	-1.28	.75
	NT	.275	.487	.999	-1.20	1.75
	ACT	-.368	.359	.971	-1.46	.72
WA	NSW	-.306	.164	.579	-.80	.19
	VIC	-.254	.168	.801	-.76	.26
	QLD	-.278	.176	.760	-.81	.25
	SA	-.143	.203	.997	-.76	.47
	TAS	-.409	.335	.926	-1.43	.61
	NT	.132	.487	1.000	-1.34	1.61
	ACT	-.511	.359	.846	-1.60	.58

(I) State	(J) State	Mean Difference (I-J)	Std. Error	Sig.	Lower Bound	Upper Bound
TAS	NSW	.103	.313	1.000	-.85	1.05
	VIC	.155	.315	1.000	-.80	1.11
	QLD	.131	.320	1.000	-.84	1.10
	SA	.266	.336	.993	-.75	1.28
	WA	.409	.335	.926	-.61	1.43
	NT	.541	.555	.978	-1.14	2.23
	ACT	-.102	.447	1.000	-1.46	1.26
NT	NSW	-.438	.472	.983	-1.87	.99
	VIC	-.386	.473	.992	-1.82	1.05
	QLD	-.410	.476	.989	-1.86	1.03
	SA	-.275	.487	.999	-1.75	1.20
	WA	-.132	.487	1.000	-1.61	1.34
	TAS	-.541	.555	.978	-2.23	1.14
	ACT	-.643	.570	.951	-2.37	1.09
ACT	NSW	.205	.339	.999	-.82	1.23
	VIC	.257	.340	.995	-.78	1.29
	QLD	.232	.344	.998	-.81	1.28
	SA	.368	.359	.971	-.72	1.46
	WA	.511	.359	.846	-.58	1.60
	TAS	.102	.447	1.000	-1.26	1.46
	NT	.643	.570	.951	-1.09	2.37

Table 63. Multiple comparisons between States of agreement with Nuclear (for power) – (Tukey HSD)

(I) State	(J) State	Mean Difference (I-J)	Std. Error	Sig.	Lower Bound	Upper Bound
NSW	VIC	.329	.135	.226	-.08	.74
	QLD	.355	.147	.235	-.09	.80
	SA	-.206	.187	.957	-.77	.36
	WA	.700*	.186	.004	.14	1.26
	TAS	.523	.354	.820	-.55	1.60
	NT	.231	.534	1.000	-1.39	1.85
	ACT	-.269	.383	.997	-1.43	.89
VIC	NSW	-.329	.135	.226	-.74	.08
	QLD	.026	.152	1.000	-.44	.49
	SA	-.535	.191	.097	-1.12	.05
	WA	.371	.190	.515	-.21	.95
	TAS	.194	.357	.999	-.89	1.28
	NT	-.098	.535	1.000	-1.72	1.53
	ACT	-.598	.385	.778	-1.77	.57
QLD	NSW	-.355	.147	.235	-.80	.09
	VIC	-.026	.152	1.000	-.49	.44
	SA	-.561	.200	.094	-1.17	.05
	WA	.345	.199	.661	-.26	.95
	TAS	.168	.361	1.000	-.93	1.27
	NT	-.124	.538	1.000	-1.76	1.51
	ACT	-.624	.389	.749	-1.81	.56
SA	NSW	.206	.187	.957	-.36	.77
	VIC	.535	.191	.097	-.05	1.12
	QLD	.561	.200	.094	-.05	1.17
	WA	.906*	.230	.002	.21	1.60
	TAS	.729	.379	.536	-.42	1.88
	NT	.437	.551	.993	-1.23	2.11
	ACT	-.063	.406	1.000	-1.30	1.17
WA	NSW	-.700*	.186	.004	-1.26	-.14
	VIC	-.371	.190	.515	-.95	.21
	QLD	-.345	.199	.661	-.95	.26
	SA	-.906*	.230	.002	-1.60	-.21
	TAS	-.177	.379	1.000	-1.33	.97
	NT	-.469	.550	.990	-2.14	1.20
	ACT	-.969	.405	.247	-2.20	.26

(I) State	(J) State	Mean Difference (I-J)	Std. Error	Sig.	Lower Bound	Upper Bound
TAS	NSW	-.523	.354	.820	-1.60	.55
	VIC	-.194	.357	.999	-1.28	.89
	QLD	-.168	.361	1.000	-1.27	.93
	SA	-.729	.379	.536	-1.88	.42
	WA	.177	.379	1.000	-.97	1.33
	NT	-.292	.627	1.000	-2.20	1.61
	ACT	-.792	.505	.770	-2.33	.74
NT	NSW	-.231	.534	1.000	-1.85	1.39
	VIC	.098	.535	1.000	-1.53	1.72
	QLD	.124	.538	1.000	-1.51	1.76
	SA	-.437	.551	.993	-2.11	1.23
	WA	.469	.550	.990	-1.20	2.14
	TAS	.292	.627	1.000	-1.61	2.20
	ACT	-.500	.644	.994	-2.45	1.45
ACT	NSW	.269	.383	.997	-.89	1.43
	VIC	.598	.385	.778	-.57	1.77
	QLD	.624	.389	.749	-.56	1.81
	SA	.063	.406	1.000	-1.17	1.30
	WA	.969	.405	.247	-.26	2.20
	TAS	.792	.505	.770	-.74	2.33
	NT	.500	.644	.994	-1.45	2.45

Table 64. Multiple comparisons between States of agreement with Biomass – (Tukey HSD)

(I) State	(J) State	Mean Difference (I-J)	Std. Error	Sig.	Lower Bound	Upper Bound
NSW	VIC	.084	.082	.970	-.16	.33
	QLD	.157	.089	.645	-.11	.43
	SA	-.139	.113	.922	-.48	.20
	WA	.212	.112	.556	-.13	.55
	TAS	-.191	.214	.987	-.84	.46
	NT	-.106	.322	1.000	-1.08	.87
	ACT	-.249	.231	.961	-.95	.45
VIC	NSW	-.084	.082	.970	-.33	.16
	QLD	.072	.092	.994	-.21	.35
	SA	-.223	.116	.528	-.57	.13
	WA	.128	.115	.953	-.22	.48
	TAS	-.275	.215	.908	-.93	.38
	NT	-.190	.323	.999	-1.17	.79
	ACT	-.333	.232	.841	-1.04	.37
QLD	NSW	-.157	.089	.645	-.43	.11
	VIC	-.072	.092	.994	-.35	.21
	SA	-.296	.121	.218	-.66	.07
	WA	.056	.120	1.000	-.31	.42
	TAS	-.347	.218	.756	-1.01	.31
	NT	-.263	.325	.993	-1.25	.72
	ACT	-.406	.235	.670	-1.12	.31
SA	NSW	.139	.113	.922	-.20	.48
	VIC	.223	.116	.528	-.13	.57
	QLD	.296	.121	.218	-.07	.66
	WA	.352	.139	.182	-.07	.77
	TAS	-.051	.229	1.000	-.75	.64
	NT	.033	.332	1.000	-.98	1.04
	ACT	-.110	.245	1.000	-.85	.63
WA	NSW	-.212	.112	.556	-.55	.13
	VIC	-.128	.115	.953	-.48	.22
	QLD	-.056	.120	1.000	-.42	.31
	SA	-.352	.139	.182	-.77	.07
	TAS	-.403	.229	.646	-1.10	.29
	NT	-.319	.332	.980	-1.33	.69
	ACT	-.461	.245	.562	-1.20	.28

(I) State	(J) State	Mean Difference (I-J)	Std. Error	Sig.	Lower Bound	Upper Bound
TAS	NSW	.191	.214	.987	-.46	.84
	VIC	.275	.215	.908	-.38	.93
	QLD	.347	.218	.756	-.31	1.01
	SA	.051	.229	1.000	-.64	.75
	WA	.403	.229	.646	-.29	1.10
	NT	.084	.379	1.000	-1.07	1.23
	ACT	-.058	.305	1.000	-.98	.87
NT	NSW	.106	.322	1.000	-.87	1.08
	VIC	.190	.323	.999	-.79	1.17
	QLD	.263	.325	.993	-.72	1.25
	SA	-.033	.332	1.000	-1.04	.98
	WA	.319	.332	.980	-.69	1.33
	TAS	-.084	.379	1.000	-1.23	1.07
	ACT	-.143	.389	1.000	-1.32	1.04
ACT	NSW	.249	.231	.961	-.45	.95
	VIC	.333	.232	.841	-.37	1.04
	QLD	.406	.235	.670	-.31	1.12
	SA	.110	.245	1.000	-.63	.85
	WA	.461	.245	.562	-.28	1.20
	TAS	.058	.305	1.000	-.87	.98
	NT	.143	.389	1.000	-1.04	1.32

E. AGREEMENT WITH POTENTIAL ENERGY SOURCES AND TECHNOLOGIES TO GENERATE FUTURE ENERGY NEEDS

Table 65. Agreement with potential energy sources by gender (Group statistics)

	Gender (binary)	N	Mean	Std. Deviation	Std. Error Mean
T1 Support for hydrogen	Male	1463	5.6466	1.22901	.03213
	Female	1543	4.9916	1.19415	.03040
T2 Support for hydrogen	Male	1463	5.9952	1.12640	.02945
	Female	1543	5.7084	1.14759	.02921
T3 Support for hydrogen	Male	1158	6.0130	1.17258	.03446
	Female	1247	5.8749	1.08117	.03062

Table 66. Agreement with potential energy sources - Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
T1 Support for hydrogen	Equal variances assumed	.632	.427	14.820	3004	.000	.65504	.04420	.56838	.74171
	Equal variances not assumed			14.809	2983.938	.000	.65504	.04423	.56831	.74177
T2 Support for hydrogen	Equal variances assumed	11.818	.001	6.912	3004	.000	.28685	.04150	.20548	.36823
	Equal variances not assumed			6.915	3000.402	.000	.28685	.04148	.20552	.36819
T3 Support for hydrogen	Equal variances assumed	.004	.951	3.004	2403	.003	.13805	.04596	.04793	.22817
	Equal variances not assumed			2.995	2346.778	.003	.13805	.04609	.04766	.22844

Agreement with potential energy sources by State and Territory

Differences between states were tested with one-way ANOVAs, which revealed overall there were very few differences between the States, however there was some statistically significant differences in their level of agreement with coal ($F(7,1505) = 2.627$, $p = .011$), wind ($F(7,1505) = 2.522$, $p = .014$), solar PV ($F(7,1505) = 2.577$, $p = .012$), and nuclear energy ($F(7,1505) = 3.780$, $p < .001$). Tukey's HSD post hoc comparisons (Appendix 2) showed Western Australian residents differed from one or two states for each of these energy sources. Western Australian respondents expressed slightly stronger disagreement about the use of coal ($M = 3.09$, $SD = 1.80$) compared to residents in NSW ($M = 3.73$, $SD = 1.88$; Cohen's $d = .348$) and QLD ($M = 3.74$, $SD = 1.89$; Cohen's $d = .352$). Western Australians also disagreed more strongly about nuclear power ($M = 3.46$, $SD = 1.95$) compared to NSW ($M = 4.16$, $SD = 1.94$; Cohen's $d = .360$) and SA residents ($M = 4.37$, $SD = 2.01$; Cohen's $d = .460$). In addition, Western Australian residents were more in favour of wind ($M = 6.12$, $SD = 1.18$) than Queensland residents ($M = 5.70$, $SD = 1.40$; Cohen's $d = .324$), and Western Australians were more in favour of solar PV ($M = 6.18$, $SD = 1.07$) than NSW residents ($M = 5.76$, $SD = 1.37$; Cohen's $d = .342$). Although these results are statistically significant, the Cohen's d effect size results indicate these differences are small.

Table 67. Agreement with Hydrogen to generate future energy needs by State & Territory - Descriptives

State/Terr.	N	Mean	Std. Dev	Std. Error	95% Confidence Interval for Mean		Min.	Max.
					Lower Bound	Upper Bound		
NSW	464	5.76	1.202	.056	5.65	5.87	1	7
VIC	389	5.78	1.178	.060	5.66	5.90	1	7
QLD	292	5.71	1.198	.070	5.57	5.85	1	7
SA	145	5.96	1.060	.088	5.78	6.13	2	7
WA	148	5.97	.993	.082	5.80	6.13	3	7
TAS	33	5.76	1.032	.180	5.39	6.12	4	7
NT	14	6.14	1.099	.294	5.51	6.78	4	7
ACT	28	6.04	.838	.158	5.71	6.36	4	7
Total	1513	5.80	1.154	.030	5.75	5.86	1	7

Table 68.Agreement with Coal to generate future energy needs by State and Territory – Descriptives

State/Terr.	N	Mean	Std. Dev.	Std. Error	95% Confidence Interval for Mean		Min.	Max.
					Lower Bound	Upper Bound		
NSW	464	3.73	1.878	.087	3.56	3.90	1	7
VIC	389	3.53	1.793	.091	3.36	3.71	1	7
QLD	292	3.74	1.894	.111	3.52	3.96	1	7
SA	145	3.39	1.823	.151	3.09	3.69	1	7
WA	148	3.09	1.797	.148	2.80	3.39	1	7
TAS	33	3.42	1.985	.346	2.72	4.13	1	7
NT	14	3.14	2.070	.553	1.95	4.34	1	7
ACT	28	3.75	2.154	.407	2.91	4.59	1	7
Total	1513	3.58	1.863	.048	3.48	3.67	1	7

Table 69.Agreement with Gas to generate future energy needs by State – Descriptives

State/Terr.	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
NSW	464	4.55	1.607	.075	4.40	4.69	1	7
VIC	389	4.54	1.506	.076	4.39	4.69	1	7
QLD	292	4.45	1.560	.091	4.27	4.63	1	7
SA	145	4.73	1.445	.120	4.49	4.97	1	7
WA	148	4.44	1.476	.121	4.20	4.68	1	7
TAS	33	4.45	1.438	.250	3.94	4.96	1	6
NT	14	4.07	1.900	.508	2.97	5.17	1	7
ACT	28	4.61	1.729	.327	3.94	5.28	1	7
Total	1513	4.53	1.545	.040	4.45	4.61	1	7

Table 70. Agreement with Gas or coal with carbon capture and storage to generate future energy needs by State – Descriptives

State/Terr.	N	Mean	Std. Dev.	Std. Error	95% Confidence Interval for Mean		Min.	Max.
					Lower Bound	Upper Bound		
NSW	464	4.23	1.677	.078	4.08	4.38	1	7
VIC	389	4.19	1.657	.084	4.03	4.36	1	7
QLD	292	4.23	1.567	.092	4.05	4.41	1	7
SA	145	4.23	1.724	.143	3.95	4.52	1	7
WA	148	4.04	1.534	.126	3.79	4.29	1	7
TAS	33	4.21	1.576	.274	3.65	4.77	1	7
NT	14	3.93	1.439	.385	3.10	4.76	1	7
ACT	28	4.04	2.063	.390	3.24	4.84	1	7
Total	1513	4.19	1.643	.042	4.11	4.28	1	7

Table 71. Agreement with Wind to generate future energy needs by State – Descriptives

State/Terr.	N	Mean	Std. Dev.	Std. Error	95% Confidence Interval for Mean		Min.	Max.
					Lower Bound	Upper Bound		
NSW	464	5.76	1.366	.063	5.64	5.89	1	7
VIC	389	5.82	1.250	.063	5.69	5.94	1	7
QLD	292	5.70	1.397	.082	5.53	5.86	1	7
SA	145	5.97	1.121	.093	5.78	6.15	1	7
WA	148	6.12	1.177	.097	5.93	6.31	1	7
TAS	33	6.00	1.173	.204	5.58	6.42	3	7
NT	14	6.36	.842	.225	5.87	6.84	4	7
ACT	28	6.11	1.397	.264	5.57	6.65	2	7
Total	1513	5.84	1.301	.033	5.77	5.90	1	7

Table 72. Agreement with Solar PV to generate future energy needs by State – Descriptives

State/Terr.	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Min.	Max.
					Lower Bound	Upper Bound		
NSW	464	5.79	1.262	.059	5.67	5.90	1	7
VIC	389	5.83	1.195	.061	5.71	5.95	1	7
QLD	292	5.87	1.270	.074	5.72	6.02	1	7
SA	145	5.94	1.168	.097	5.75	6.13	1	7
WA	148	6.18	1.067	.088	6.00	6.35	2	7
TAS	33	6.15	1.064	.185	5.77	6.53	4	7
NT	14	6.50	.855	.228	6.01	6.99	4	7
ACT	28	6.04	1.347	.254	5.51	6.56	2	7
Total	1513	5.89	1.219	.031	5.83	5.95	1	7

Table 73. Agreement with Oil (e.g. diesel/petrol for transport) to generate future energy needs by State – Descriptives

State/Terr.	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Min.	Max.
					Lower Bound	Upper Bound		
NSW	464	3.87	1.782	.083	3.70	4.03	1	7
VIC	389	3.81	1.716	.087	3.64	3.99	1	7
QLD	292	3.84	1.698	.099	3.64	4.03	1	7
SA	145	3.70	1.684	.140	3.43	3.98	1	7
WA	148	3.56	1.739	.143	3.28	3.84	1	7
TAS	33	3.97	1.630	.284	3.39	4.55	1	6
NT	14	3.43	1.828	.488	2.37	4.48	1	7
ACT	28	4.07	2.142	.405	3.24	4.90	1	7
Total	1513	3.80	1.739	.045	3.72	3.89	1	7

Table 74. Agreement with Nuclear (for power) to generate future energy needs by State – Descriptives

State/Terr.	N	Mean	Std. Dev.	Std. Error	95% Confidence Interval for Mean		Min.	Max.
					Lower Bound	Upper Bound		
NSW	464	4.16	1.943	.090	3.98	4.34	1	7
VIC	389	3.83	1.952	.099	3.64	4.02	1	7
QLD	292	3.80	1.988	.116	3.58	4.03	1	7
SA	145	4.37	2.013	.167	4.04	4.70	1	7
WA	148	3.46	1.950	.160	3.14	3.78	1	7
TAS	33	3.64	1.966	.342	2.94	4.33	1	7
NT	14	3.93	1.979	.529	2.79	5.07	1	7
ACT	28	4.43	2.201	.416	3.57	5.28	1	7
Total	1513	3.95	1.980	.051	3.85	4.05	1	7

Table 75. Agreement with Biomass to generate future energy needs by State – Descriptives

State/Terr.	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Min.	Max.
					Lower Bound	Upper Bound		
NSW	464	4.54	1.282	.060	4.42	4.65	1	7
VIC	389	4.45	1.103	.056	4.34	4.56	1	7
QLD	292	4.38	1.171	.069	4.25	4.51	1	7
SA	145	4.68	1.124	.093	4.49	4.86	1	7
WA	148	4.32	1.114	.092	4.14	4.51	2	7
TAS	33	4.73	1.353	.235	4.25	5.21	1	7
NT	14	4.64	1.447	.387	3.81	5.48	1	7
ACT	28	4.79	1.228	.232	4.31	5.26	2	7
Total	1513	4.49	1.190	.031	4.43	4.55	1	7

Table 76 Agreement with potential energy sources by State - ANOVA

Energy source/technology		Sum of Squares	df	Mean Square	F	Sig.
Hydrogen	Between Groups	14.149	7	2.021	1.521	.156
	Within Groups	2000.550	1505	1.329		
	Total	2014.699	1512			
Coal	Between Groups	63.337	7	9.048	2.627	.011
	Within Groups	5184.399	1505	3.445		
	Total	5247.736	1512			
Gas	Between Groups	12.319	7	1.760	.736	.641
	Within Groups	3598.680	1505	2.391		
	Total	3610.999	1512			
Gas or coal with carbon capture and storage	Between Groups	6.418	7	.917	.338	.936
	Within Groups	4077.064	1505	2.709		
	Total	4083.482	1512			
Wind	Between Groups	29.653	7	4.236	2.522	.014
	Within Groups	2528.368	1505	1.680		
	Total	2558.021	1512			
Solar PV	Between Groups	26.598	7	3.800	2.577	.012
	Within Groups	2219.076	1505	1.474		
	Total	2245.673	1512			
Oil (e.g. diesel/petrol for transport)	Between Groups	17.311	7	2.473	.817	.573
	Within Groups	4556.780	1505	3.028		
	Total	4574.091	1512			
Nuclear (for power)	Between Groups	102.401	7	14.629	3.780	.000
	Within Groups	5824.680	1505	3.870		
	Total	5927.081	1512			
Biomass	Between Groups	18.775	7	2.682	1.901	.066
	Within Groups	2123.224	1505	1.411		
	Total	2141.999	1512			

Post Hoc Tests

Table 77. Multiple comparisons between agreement with hydrogen by State/Territory (Post Hoc Tests) – (Tukey HSD)

	Dependent variable – Hydrogen					
(I) State /Terr.	(J) Sta/Terr	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
NSW	VIC	-.023	.079	1.000	-.26	.22
	QLD	.046	.086	.999	-.22	.31
	SA	-.200	.110	.604	-.53	.13
	WA	-.208	.109	.546	-.54	.12
	TAS	.001	.208	1.000	-.63	.63
	NT	-.384	.313	.923	-1.33	.57
	ACT	-.277	.224	.921	-.96	.40
VIC	NSW	.023	.079	1.000	-.22	.26
	QLD	.069	.089	.994	-.20	.34
	SA	-.177	.112	.763	-.52	.16
	WA	-.185	.111	.714	-.52	.15
	TAS	.024	.209	1.000	-.61	.66
	NT	-.361	.314	.945	-1.31	.59
	ACT	-.254	.226	.951	-.94	.43
QLD	NSW	-.046	.086	.999	-.31	.22
	VIC	-.069	.089	.994	-.34	.20
	SA	-.246	.117	.414	-.60	.11
	WA	-.254	.116	.363	-.61	.10
	TAS	-.045	.212	1.000	-.69	.60
	NT	-.431	.315	.873	-1.39	.53
	ACT	-.323	.228	.849	-1.02	.37

(I) State/Terr	(J) State/Terr	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
SA	NSW	.200	.110	.604	-.13	.53
	VIC	.177	.112	.763	-.16	.52
	QLD	.246	.117	.414	-.11	.60
	WA	-.008	.135	1.000	-.42	.40
	TAS	.201	.222	.986	-.47	.88
	NT	-.184	.323	.999	-1.16	.80
	ACT	-.077	.238	1.000	-.80	.65
WA	NSW	.208	.109	.546	-.12	.54
	VIC	.185	.111	.714	-.15	.52
	QLD	.254	.116	.363	-.10	.61
	SA	.008	.135	1.000	-.40	.42
	TAS	.209	.222	.982	-.47	.88
	NT	-.177	.322	.999	-1.16	.80
	ACT	-.069	.238	1.000	-.79	.65
TAS	NSW	-.001	.208	1.000	-.63	.63
	VIC	-.024	.209	1.000	-.66	.61
	QLD	.045	.212	1.000	-.60	.69
	SA	-.201	.222	.986	-.88	.47
	WA	-.209	.222	.982	-.88	.47
	NT	-.385	.368	.967	-1.50	.73
	ACT	-.278	.296	.982	-1.18	.62
NT	NSW	.384	.313	.923	-.57	1.33
	VIC	.361	.314	.945	-.59	1.31
	QLD	.431	.315	.873	-.53	1.39
	SA	.184	.323	.999	-.80	1.16
	WA	.177	.322	.999	-.80	1.16
	TAS	.385	.368	.967	-.73	1.50
	ACT	.107	.377	1.000	-1.04	1.25
ACT	NSW	.277	.224	.921	-.40	.96
	VIC	.254	.226	.951	-.43	.94
	QLD	.323	.228	.849	-.37	1.02
	SA	.077	.238	1.000	-.65	.80
	WA	.069	.238	1.000	-.65	.79
	TAS	.278	.296	.982	-.62	1.18
	NT	-.107	.377	1.000	-1.25	1.04

Table 78. Multiple comparisons between agreement with Coal by State (Post Hoc Tests) – (Tukey HSD)

	Dependent variable – Coal					
					95% Confidence Interval	
(I) State /Terr	(J) State/ Terr	Mean Difference (I-J)	Std. Error	Sig.	Lower Bound	Upper Bound
NSW	VIC	.196	.128	.788	-.19	.58
	QLD	-.009	.139	1.000	-.43	.41
	SA	.344	.177	.516	-.19	.88
	WA	.636*	.175	.007	.10	1.17
	TAS	.306	.334	.985	-.71	1.32
	NT	.588	.503	.941	-.94	2.12
	ACT	-.019	.361	1.000	-1.12	1.08
VIC	NSW	-.196	.128	.788	-.58	.19
	QLD	-.205	.144	.845	-.64	.23
	SA	.148	.181	.992	-.40	.70
	WA	.440	.179	.216	-.10	.98
	TAS	.110	.337	1.000	-.91	1.13
	NT	.392	.505	.994	-1.14	1.92
	ACT	-.215	.363	.999	-1.32	.89
QLD	NSW	.009	.139	1.000	-.41	.43
	VIC	.205	.144	.845	-.23	.64
	SA	.354	.189	.569	-.22	.93
	WA	.645*	.187	.014	.08	1.21
	TAS	.315	.341	.984	-.72	1.35
	NT	.597	.508	.939	-.94	2.14
	ACT	-.010	.367	1.000	-1.12	1.10
SA	NSW	-.344	.177	.516	-.88	.19
	VIC	-.148	.181	.992	-.70	.40
	QLD	-.354	.189	.569	-.93	.22
	WA	.292	.217	.882	-.37	.95
	TAS	-.038	.358	1.000	-1.12	1.05
	NT	.243	.519	1.000	-1.33	1.82
	ACT	-.364	.383	.981	-1.53	.80
WA	NSW	-.636*	.175	.007	-1.17	-.10
	VIC	-.440	.179	.216	-.98	.10
	QLD	-.645*	.187	.014	-1.21	-.08
	SA	-.292	.217	.882	-.95	.37
	TAS	-.330	.357	.984	-1.41	.75
	NT	-.048	.519	1.000	-1.62	1.53
	ACT	-.655	.382	.678	-1.82	.51
TAS	NSW	-.306	.334	.985	-1.32	.71
	VIC	-.110	.337	1.000	-1.13	.91
	QLD	-.315	.341	.984	-1.35	.72
	SA	.038	.358	1.000	-1.05	1.12
	WA	.330	.357	.984	-.75	1.41
	NT	.281	.592	1.000	-1.52	2.08
	ACT	-.326	.477	.997	-1.77	1.12
NT	NSW	-.588	.503	.941	-2.12	.94
	VIC	-.392	.505	.994	-1.92	1.14
	QLD	-.597	.508	.939	-2.14	.94
	SA	-.243	.519	1.000	-1.82	1.33
	WA	.048	.519	1.000	-1.53	1.62
	TAS	-.281	.592	1.000	-2.08	1.52
	ACT	-.607	.608	.975	-2.45	1.24

(I) State	(J) State -	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
	NSW	.019	.361	1.000	-1.08	1.12
	VIC	.215	.363	.999	-.89	1.32
	QLD	.010	.367	1.000	-1.10	1.12
	SA	.364	.383	.981	-.80	1.53
	WA	.655	.382	.678	-.51	1.82
	TAS	.326	.477	.997	-1.12	1.77
ACT	NT	.607	.608	.975	-1.24	2.45

Table 79. Multiple comparisons between agreement with Gas by State (Post Hoc Tests) – (Tukey HSD)

	Dependent variable – Coal					
(I) State	(J) State -	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
	VIC	.003	.106	1.000	-.32	.33
	QLD	.093	.116	.993	-.26	.44
	SA	-.186	.147	.912	-.63	.26
	WA	.106	.146	.996	-.34	.55
	TAS	.091	.279	1.000	-.75	.94
	NT	.474	.419	.950	-.80	1.75
NSW	ACT	-.062	.301	1.000	-.98	.85
	NSW	-.003	.106	1.000	-.33	.32
	QLD	.090	.120	.995	-.27	.45
	SA	-.189	.150	.915	-.65	.27
	WA	.103	.149	.997	-.35	.56
	TAS	.088	.280	1.000	-.76	.94
	NT	.471	.421	.953	-.81	1.75
VIC	ACT	-.065	.303	1.000	-.98	.85
	NSW	-.093	.116	.993	-.44	.26
	VIC	-.090	.120	.995	-.45	.27
	SA	-.279	.157	.637	-.76	.20
	WA	.013	.156	1.000	-.46	.49
	TAS	-.002	.284	1.000	-.86	.86
	NT	.381	.423	.986	-.90	1.66
QLD	ACT	-.155	.306	1.000	-1.08	.77
	NSW	.186	.147	.912	-.26	.63
	VIC	.189	.150	.915	-.27	.65
	QLD	.279	.157	.637	-.20	.76
	WA	.292	.181	.741	-.26	.84
	TAS	.276	.298	.983	-.63	1.18
	NT	.660	.433	.794	-.65	1.97
SA	ACT	.124	.319	1.000	-.84	1.09
	NSW	-.106	.146	.996	-.55	.34
	VIC	-.103	.149	.997	-.56	.35
	QLD	-.013	.156	1.000	-.49	.46
	SA	-.292	.181	.741	-.84	.26
	TAS	-.015	.298	1.000	-.92	.89
	NT	.368	.432	.990	-.94	1.68
WA	ACT	-.168	.319	1.000	-1.14	.80

	Dependent variable – Coal					
					95% Confidence Interval	
(I) State/Terr	(J) State/ Terr	Mean Difference (I-J)	Std. Error	Sig.	Lower Bound	Upper Bound
	NSW	-.091	.279	1.000	-.94	.75
	VIC	-.088	.280	1.000	-.94	.76
	QLD	.002	.284	1.000	-.86	.86
	SA	-.276	.298	.983	-1.18	.63
	WA	.015	.298	1.000	-.89	.92
	NT	.383	.493	.994	-1.11	1.88
TAS	ACT	-.153	.397	1.000	-1.36	1.05
	NSW	-.474	.419	.950	-1.75	.80
	VIC	-.471	.421	.953	-1.75	.81
	QLD	-.381	.423	.986	-1.66	.90
	SA	-.660	.433	.794	-1.97	.65
	WA	-.368	.432	.990	-1.68	.94
	TAS	-.383	.493	.994	-1.88	1.11
NT	ACT	-.536	.506	.965	-2.07	1.00
	NSW	.062	.301	1.000	-.85	.98
	VIC	.065	.303	1.000	-.85	.98
	QLD	.155	.306	1.000	-.77	1.08
	SA	-.124	.319	1.000	-1.09	.84
	WA	.168	.319	1.000	-.80	1.14
	TAS	.153	.397	1.000	-1.05	1.36
ACT	NT	.536	.506	.965	-1.00	2.07

Table 80. Multiple comparisons between agreement with Gas or coal with carbon capture and storage by State (Post Hoc Tests) – (Tukey HSD)

	Dependent variable – Gas or coal with carbon capture and storage					
					95% Confidence Interval	
(I) State	(J) State -	Mean Difference (I-J)	Std. Error	Sig.	Lower Bound	Upper Bound
NSW	VIC	.038	.113	1.000	-.31	.38
	QLD	-.004	.123	1.000	-.38	.37
	SA	-.006	.157	1.000	-.48	.47
	WA	.188	.155	.929	-.28	.66
	TAS	.016	.297	1.000	-.88	.92
	NT	.300	.446	.998	-1.06	1.66
	ACT	.193	.320	.999	-.78	1.16
VIC	NSW	-.038	.113	1.000	-.38	.31
	QLD	-.043	.127	1.000	-.43	.34
	SA	-.044	.160	1.000	-.53	.44
	WA	.150	.159	.982	-.33	.63
	TAS	-.022	.298	1.000	-.93	.88
	NT	.262	.448	.999	-1.10	1.62
	ACT	.155	.322	1.000	-.82	1.13
QLD	NSW	.004	.123	1.000	-.37	.38
	VIC	.043	.127	1.000	-.34	.43
	SA	-.002	.167	1.000	-.51	.51
	WA	.192	.166	.943	-.31	.70
	TAS	.021	.302	1.000	-.90	.94
	NT	.304	.450	.998	-1.06	1.67
	ACT	.197	.326	.999	-.79	1.19
SA	NSW	.006	.157	1.000	-.47	.48
	VIC	.044	.160	1.000	-.44	.53
	QLD	.002	.167	1.000	-.51	.51
	WA	.194	.192	.973	-.39	.78
	TAS	.022	.317	1.000	-.94	.99
	NT	.306	.461	.998	-1.09	1.70
	ACT	.199	.340	.999	-.83	1.23
WA	NSW	-.188	.155	.929	-.66	.28
	VIC	-.150	.159	.982	-.63	.33
	QLD	-.192	.166	.943	-.70	.31
	SA	-.194	.192	.973	-.78	.39
	TAS	-.172	.317	.999	-1.13	.79
	NT	.112	.460	1.000	-1.28	1.51
	ACT	.005	.339	1.000	-1.02	1.03
TAS	NSW	-.016	.297	1.000	-.92	.88
	VIC	.022	.298	1.000	-.88	.93
	QLD	-.021	.302	1.000	-.94	.90
	SA	-.022	.317	1.000	-.99	.94
	WA	.172	.317	.999	-.79	1.13
	NT	.284	.525	.999	-1.31	1.88
	ACT	.176	.423	1.000	-1.11	1.46

(I) State	(J) State	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
	NSW	-.300	.446	.998	-1.66	1.06
	VIC	-.262	.448	.999	-1.62	1.10
	QLD	-.304	.450	.998	-1.67	1.06
	SA	-.306	.461	.998	-1.70	1.09
	WA	-.112	.460	1.000	-1.51	1.28
	TAS	-.284	.525	.999	-1.88	1.31
NT	ACT	-.107	.539	1.000	-1.74	1.53
	NSW	-.193	.320	.999	-1.16	.78
	VIC	-.155	.322	1.000	-1.13	.82
	QLD	-.197	.326	.999	-1.19	.79
	SA	-.199	.340	.999	-1.23	.83
	WA	-.005	.339	1.000	-1.03	1.02
	TAS	-.176	.423	1.000	-1.46	1.11
ACT	NT	.107	.539	1.000	-1.53	1.74

Table 81. Multiple comparisons between agreement with Wind by State (Post Hoc Tests) – (Tukey HSD)

	Dependent variable – Wind					
					95% Confidence Interval	
(I) State	(J) State -	Mean Difference (I-J)	Std. Error	Sig.	Lower Bound	Upper Bound
NSW	VIC	-.055	.089	.999	-.32	.22
	QLD	.068	.097	.997	-.23	.36
	SA	-.203	.123	.724	-.58	.17
	WA	-.359	.122	.067	-.73	.01
	TAS	-.237	.234	.972	-.95	.47
	NT	-.594	.352	.694	-1.66	.47
	ACT	-.344	.252	.873	-1.11	.42
VIC	NSW	.055	.089	.999	-.22	.32
	QLD	.122	.100	.927	-.18	.43
	SA	-.148	.126	.939	-.53	.23
	WA	-.304	.125	.228	-.68	.08
	TAS	-.183	.235	.994	-.90	.53
	NT	-.540	.353	.791	-1.61	.53
	ACT	-.290	.254	.947	-1.06	.48
QLD	NSW	-.068	.097	.997	-.36	.23
	VIC	-.122	.100	.927	-.43	.18
	SA	-.270	.132	.446	-.67	.13
	WA	-.426*	.131	.025	-.82	-.03
	TAS	-.305	.238	.906	-1.03	.42
	NT	-.662	.355	.574	-1.74	.41
	ACT	-.412	.256	.747	-1.19	.37
SA	NSW	.203	.123	.724	-.17	.58
	VIC	.148	.126	.939	-.23	.53
	QLD	.270	.132	.446	-.13	.67
	WA	-.156	.151	.970	-.62	.30
	TAS	-.034	.250	1.000	-.79	.72
	NT	-.392	.363	.961	-1.49	.71
	ACT	-.142	.268	1.000	-.95	.67
WA	NSW	.359	.122	.067	-.01	.73
	VIC	.304	.125	.228	-.08	.68
	QLD	.426*	.131	.025	.03	.82
	SA	.156	.151	.970	-.30	.62
	TAS	.122	.250	1.000	-.64	.88
	NT	-.236	.362	.998	-1.34	.86
	ACT	.014	.267	1.000	-.80	.83
TAS	NSW	.237	.234	.972	-.47	.95
	VIC	.183	.235	.994	-.53	.90
	QLD	.305	.238	.906	-.42	1.03
	SA	.034	.250	1.000	-.72	.79
	WA	-.122	.250	1.000	-.88	.64
	NT	-.357	.413	.989	-1.61	.90
	ACT	-.107	.333	1.000	-1.12	.90
NT	NSW	.594	.352	.694	-.47	1.66
	VIC	.540	.353	.791	-.53	1.61
	QLD	.662	.355	.574	-.41	1.74
	SA	.392	.363	.961	-.71	1.49
	WA	.236	.362	.998	-.86	1.34
	TAS	.357	.413	.989	-.90	1.61
	ACT	.250	.424	.999	-1.04	1.54

(I) State	(J) State -	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
	NSW	.344	.252	.873	-.42	1.11
	VIC	.290	.254	.947	-.48	1.06
	QLD	.412	.256	.747	-.37	1.19
	SA	.142	.268	1.000	-.67	.95
	WA	-.014	.267	1.000	-.83	.80
	TAS	.107	.333	1.000	-.90	1.12
ACT	NT	-.250	.424	.999	-1.54	1.04

Table 82. Multiple comparisons between agreement with Solar PV by State (Post Hoc Tests) – (Tukey HSD)

	Dependent variable – Solar PV					
(I) State/Terr	(J) State/ Terr	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
	VIC	-.044	.083	1.000	-.30	.21
	QLD	-.081	.091	.987	-.36	.19
	SA	-.149	.116	.902	-.50	.20
	WA	-.387*	.115	.017	-.73	-.04
	TAS	-.363	.219	.714	-1.03	.30
	NT	-.711	.329	.377	-1.71	.29
NSW	ACT	-.247	.236	.967	-.96	.47
	NSW	.044	.083	1.000	-.21	.30
	QLD	-.037	.094	1.000	-.32	.25
	SA	-.105	.118	.987	-.46	.25
	WA	-.343	.117	.069	-.70	.01
	TAS	-.319	.220	.835	-.99	.35
	NT	-.667	.330	.469	-1.67	.34
VIC	ACT	-.203	.238	.990	-.92	.52
	NSW	.081	.091	.987	-.19	.36
	VIC	.037	.094	1.000	-.25	.32
	SA	-.068	.123	.999	-.44	.31
	WA	-.306	.123	.198	-.68	.07
	TAS	-.282	.223	.912	-.96	.40
	NT	-.630	.332	.553	-1.64	.38
QLD	ACT	-.166	.240	.997	-.89	.56
	NSW	.149	.116	.902	-.20	.50
	VIC	.105	.118	.987	-.25	.46
	QLD	.068	.123	.999	-.31	.44
	WA	-.238	.142	.703	-.67	.19
	TAS	-.214	.234	.985	-.92	.50
	NT	-.562	.340	.717	-1.59	.47
SA	ACT	-.098	.251	1.000	-.86	.66
	NSW	.387*	.115	.017	.04	.73
	VIC	.343	.117	.069	-.01	.70
	QLD	.306	.123	.198	-.07	.68
	SA	.238	.142	.703	-.19	.67
	TAS	.024	.234	1.000	-.69	.73
	NT	-.324	.340	.980	-1.35	.71
WA	ACT	.140	.250	.999	-.62	.90

(I) State/Terr	(J) State/ Terr	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
	NSW	.363	.219	.714	-.30	1.03
	VIC	.319	.220	.835	-.35	.99
	QLD	.282	.223	.912	-.40	.96
	SA	.214	.234	.985	-.50	.92
	WA	-.024	.234	1.000	-.73	.69
	NT	-.348	.387	.986	-1.52	.83
TAS	ACT	.116	.312	1.000	-.83	1.06
	NSW	.711	.329	.377	-.29	1.71
	VIC	.667	.330	.469	-.34	1.67
	QLD	.630	.332	.553	-.38	1.64
	SA	.562	.340	.717	-.47	1.59
	WA	.324	.340	.980	-.71	1.35
	TAS	.348	.387	.986	-.83	1.52
NT	ACT	.464	.397	.941	-.74	1.67
	NSW	.247	.236	.967	-.47	.96
	VIC	.203	.238	.990	-.52	.92
	QLD	.166	.240	.997	-.56	.89
	SA	.098	.251	1.000	-.66	.86
	WA	-.140	.250	.999	-.90	.62
	TAS	-.116	.312	1.000	-1.06	.83
ACT	NT	-.464	.397	.941	-1.67	.74

Table 83. Multiple comparisons between agreement with Oil (e.g. diesel/petrol for transport) by State (Post Hoc Tests) – (Tukey HSD)

	Dependent variable – Oil (e.g. diesel/petrol for transport)					
					95% Confidence Interval	
(I) State	(J) State -	Mean Difference (I-J)	Std. Error	Sig.	Lower Bound	Upper Bound
NSW	VIC	.051	.120	1.000	-.31	.41
	QLD	.027	.130	1.000	-.37	.42
	SA	.163	.166	.977	-.34	.67
	WA	.306	.164	.579	-.19	.80
	TAS	-.103	.313	1.000	-1.05	.85
	NT	.438	.472	.983	-.99	1.87
	ACT	-.205	.339	.999	-1.23	.82
VIC	NSW	-.051	.120	1.000	-.41	.31
	QLD	-.024	.135	1.000	-.43	.38
	SA	.111	.169	.998	-.40	.63
	WA	.254	.168	.801	-.26	.76
	TAS	-.155	.315	1.000	-1.11	.80
	NT	.386	.473	.992	-1.05	1.82
	ACT	-.257	.340	.995	-1.29	.78
QLD	NSW	-.027	.130	1.000	-.42	.37
	VIC	.024	.135	1.000	-.38	.43
	SA	.136	.177	.995	-.40	.67
	WA	.278	.176	.760	-.25	.81
	TAS	-.131	.320	1.000	-1.10	.84
	NT	.410	.476	.989	-1.03	1.86
	ACT	-.232	.344	.998	-1.28	.81
SA	NSW	-.163	.166	.977	-.67	.34
	VIC	-.111	.169	.998	-.63	.40
	QLD	-.136	.177	.995	-.67	.40
	WA	.143	.203	.997	-.47	.76
	TAS	-.266	.336	.993	-1.28	.75
	NT	.275	.487	.999	-1.20	1.75
	ACT	-.368	.359	.971	-1.46	.72
WA	NSW	-.306	.164	.579	-.80	.19
	VIC	-.254	.168	.801	-.76	.26
	QLD	-.278	.176	.760	-.81	.25
	SA	-.143	.203	.997	-.76	.47
	TAS	-.409	.335	.926	-1.43	.61
	NT	.132	.487	1.000	-1.34	1.61
	ACT	-.511	.359	.846	-1.60	.58

(I) State/Terr	(J) State/ Terr	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
	NSW	.103	.313	1.000	-.85	1.05
	VIC	.155	.315	1.000	-.80	1.11
	QLD	.131	.320	1.000	-.84	1.10
	SA	.266	.336	.993	-.75	1.28
	WA	.409	.335	.926	-.61	1.43
	NT	.541	.555	.978	-1.14	2.23
TAS	ACT	-.102	.447	1.000	-1.46	1.26
	NSW	-.438	.472	.983	-1.87	.99
	VIC	-.386	.473	.992	-1.82	1.05
	QLD	-.410	.476	.989	-1.86	1.03
	SA	-.275	.487	.999	-1.75	1.20
	WA	-.132	.487	1.000	-1.61	1.34
	TAS	-.541	.555	.978	-2.23	1.14
NT	ACT	-.643	.570	.951	-2.37	1.09
	NSW	.205	.339	.999	-.82	1.23
	VIC	.257	.340	.995	-.78	1.29
	QLD	.232	.344	.998	-.81	1.28
	SA	.368	.359	.971	-.72	1.46
	WA	.511	.359	.846	-.58	1.60
	TAS	.102	.447	1.000	-1.26	1.46
ACT	NT	.643	.570	.951	-1.09	2.37

Table 84. Multiple comparisons between agreement with Nuclear (for power) by State (Post Hoc Tests) – (Tukey HSD)

	Dependent variable – Nuclear (for power)					
(I) State /Terr	(J) State/ Terr	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
NSW	VIC	.329	.135	.226	-.08	.74
	QLD	.355	.147	.235	-.09	.80
	SA	-.206	.187	.957	-.77	.36
	WA	.700*	.186	.004	.14	1.26
	TAS	.523	.354	.820	-.55	1.60
	NT	.231	.534	1.000	-1.39	1.85
	ACT	-.269	.383	.997	-1.43	.89
VIC	NSW	-.329	.135	.226	-.74	.08
	QLD	.026	.152	1.000	-.44	.49
	SA	-.535	.191	.097	-1.12	.05
	WA	.371	.190	.515	-.21	.95
	TAS	.194	.357	.999	-.89	1.28
	NT	-.098	.535	1.000	-1.72	1.53
	ACT	-.598	.385	.778	-1.77	.57
QLD	NSW	-.355	.147	.235	-.80	.09
	VIC	-.026	.152	1.000	-.49	.44
	SA	-.561	.200	.094	-1.17	.05
	WA	.345	.199	.661	-.26	.95
	TAS	.168	.361	1.000	-.93	1.27
	NT	-.124	.538	1.000	-1.76	1.51
	ACT	-.624	.389	.749	-1.81	.56
SA	NSW	.206	.187	.957	-.36	.77
	VIC	.535	.191	.097	-.05	1.12
	QLD	.561	.200	.094	-.05	1.17
	WA	.906*	.230	.002	.21	1.60
	TAS	.729	.379	.536	-.42	1.88
	NT	.437	.551	.993	-1.23	2.11
	ACT	-.063	.406	1.000	-1.30	1.17
WA	NSW	-.700*	.186	.004	-1.26	-.14
	VIC	-.371	.190	.515	-.95	.21
	QLD	-.345	.199	.661	-.95	.26
	SA	-.906*	.230	.002	-1.60	-.21
	TAS	-.177	.379	1.000	-1.33	.97
	NT	-.469	.550	.990	-2.14	1.20
	ACT	-.969	.405	.247	-2.20	.26
TAS	NSW	-.523	.354	.820	-1.60	.55
	VIC	-.194	.357	.999	-1.28	.89
	QLD	-.168	.361	1.000	-1.27	.93
	SA	-.729	.379	.536	-1.88	.42
	WA	.177	.379	1.000	-.97	1.33
	NT	-.292	.627	1.000	-2.20	1.61
	ACT	-.792	.505	.770	-2.33	.74

(I) State/Terr	(J) State/ Terr	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
	NSW	-.231	.534	1.000	-1.85	1.39
	VIC	.098	.535	1.000	-1.53	1.72
	QLD	.124	.538	1.000	-1.51	1.76
	SA	-.437	.551	.993	-2.11	1.23
	WA	.469	.550	.990	-1.20	2.14
	TAS	.292	.627	1.000	-1.61	2.20
NT	ACT	-.500	.644	.994	-2.45	1.45
	NSW	.269	.383	.997	-.89	1.43
	VIC	.598	.385	.778	-.57	1.77
	QLD	.624	.389	.749	-.56	1.81
	SA	.063	.406	1.000	-1.17	1.30
	WA	.969	.405	.247	-.26	2.20
	TAS	.792	.505	.770	-.74	2.33
ACT	NT	.500	.644	.994	-1.45	2.45

Table 85. Multiple comparisons between agreement with Biomass by State (Post Hoc Tests) – (Tukey HSD)

	Dependent variable – Biomass					
(I) State/Terr	(J) State/ Terr	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
NSW	VIC	.084	.082	.970	-.16	.33
	QLD	.157	.089	.645	-.11	.43
	SA	-.139	.113	.922	-.48	.20
	WA	.212	.112	.556	-.13	.55
	TAS	-.191	.214	.987	-.84	.46
	NT	-.106	.322	1.000	-1.08	.87
	ACT	-.249	.231	.961	-.95	.45
VIC	NSW	-.084	.082	.970	-.33	.16
	QLD	.072	.092	.994	-.21	.35
	SA	-.223	.116	.528	-.57	.13
	WA	.128	.115	.953	-.22	.48
	TAS	-.275	.215	.908	-.93	.38
	NT	-.190	.323	.999	-1.17	.79
	ACT	-.333	.232	.841	-1.04	.37
QLD	NSW	-.157	.089	.645	-.43	.11
	VIC	-.072	.092	.994	-.35	.21
	SA	-.296	.121	.218	-.66	.07
	WA	.056	.120	1.000	-.31	.42
	TAS	-.347	.218	.756	-1.01	.31
	NT	-.263	.325	.993	-1.25	.72
	ACT	-.406	.235	.670	-1.12	.31
SA	NSW	.139	.113	.922	-.20	.48
	VIC	.223	.116	.528	-.13	.57
	QLD	.296	.121	.218	-.07	.66
	WA	.352	.139	.182	-.07	.77
	TAS	-.051	.229	1.000	-.75	.64
	NT	.033	.332	1.000	-.98	1.04
	ACT	-.110	.245	1.000	-.85	.63
WA	NSW	-.212	.112	.556	-.55	.13
	VIC	-.128	.115	.953	-.48	.22
	QLD	-.056	.120	1.000	-.42	.31
	SA	-.352	.139	.182	-.77	.07
	TAS	-.403	.229	.646	-1.10	.29
	NT	-.319	.332	.980	-1.33	.69
	ACT	-.461	.245	.562	-1.20	.28
TAS	NSW	.191	.214	.987	-.46	.84
	VIC	.275	.215	.908	-.38	.93
	QLD	.347	.218	.756	-.31	1.01
	SA	.051	.229	1.000	-.64	.75
	WA	.403	.229	.646	-.29	1.10
	NT	.084	.379	1.000	-1.07	1.23
	ACT	-.058	.305	1.000	-.98	.87

(I) State/Terr	(J) State/ Terr	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
	NSW	.106	.322	1.000	-.87	1.08
	VIC	.190	.323	.999	-.79	1.17
	QLD	.263	.325	.993	-.72	1.25
	SA	-.033	.332	1.000	-1.04	.98
	WA	.319	.332	.980	-.69	1.33
	TAS	-.084	.379	1.000	-1.23	1.07
NT	ACT	-.143	.389	1.000	-1.32	1.04
	NSW	.249	.231	.961	-.45	.95
	VIC	.333	.232	.841	-.37	1.04
	QLD	.406	.235	.670	-.31	1.12
	SA	.110	.245	1.000	-.63	.85
	WA	.461	.245	.562	-.28	1.20
	TAS	.058	.305	1.000	-.87	.98
ACT	NT	.143	.389	1.000	-1.04	1.32

Table 86. Agreement with potential future energy sources by political party preference – Descriptives

		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
						Lower Bound	Upper Bound		
Hydrogen	Liberal/National	613	5.82	1.090	.044	5.73	5.91	1	7
	Labor	497	5.96	1.000	.045	5.87	6.05	1	7
	Greens	194	5.80	1.321	.095	5.62	5.99	1	7
	Other	209	5.38	1.396	.097	5.19	5.57	1	7
	Total	1513	5.80	1.154	.030	5.75	5.86	1	7
Coal	Liberal/National	613	4.19	1.674	.068	4.06	4.32	1	7
	Labor	497	3.19	1.831	.082	3.03	3.35	1	7
	Greens	194	2.52	1.816	.130	2.26	2.78	1	7
	Other	209	3.67	1.848	.128	3.41	3.92	1	7
	Total	1513	3.58	1.863	.048	3.48	3.67	1	7
Gas	Liberal/National	613	4.98	1.304	.053	4.88	5.09	1	7
	Labor	497	4.37	1.576	.071	4.23	4.51	1	7
	Greens	194	3.64	1.671	.120	3.40	3.88	1	7
	Other	209	4.41	1.558	.108	4.20	4.62	1	7
	Total	1513	4.53	1.545	.040	4.45	4.61	1	7
Gas or coal with carbon capture and storage	Liberal/National	613	4.63	1.459	.059	4.52	4.75	1	7
	Labor	497	4.06	1.681	.075	3.91	4.21	1	7
	Greens	194	3.42	1.732	.124	3.17	3.66	1	7
	Other	209	3.95	1.615	.112	3.73	4.17	1	7
	Total	1513	4.19	1.643	.042	4.11	4.28	1	7
Wind	Liberal/National	613	5.64	1.351	.055	5.53	5.75	1	7
	Labor	497	6.06	1.100	.049	5.97	6.16	1	7
	Greens	194	6.29	1.028	.074	6.14	6.43	1	7
	Other	209	5.44	1.574	.109	5.23	5.66	1	7
	Total	1513	5.84	1.301	.033	5.77	5.90	1	7
Solar PV	Liberal/National	613	5.75	1.201	.048	5.66	5.85	1	7
	Labor	497	6.06	1.122	.050	5.97	6.16	1	7
	Greens	194	6.18	1.077	.077	6.02	6.33	2	7
	Other	209	5.59	1.478	.102	5.39	5.79	1	7
	Total	1513	5.89	1.219	.031	5.83	5.95	1	7
Oil (e.g. diesel/petrol for transport)	Liberal/National	613	4.27	1.586	.064	4.15	4.40	1	7
	Labor	497	3.60	1.707	.077	3.45	3.75	1	7
	Greens	194	2.86	1.768	.127	2.61	3.11	1	7
	Other	209	3.78	1.778	.123	3.54	4.03	1	7
	Total	1513	3.80	1.739	.045	3.72	3.89	1	7

		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
						Lower Bound	Upper Bound		
Nuclear (for power)	Liberal/National	613	4.53	1.834	.074	4.38	4.68	1	7
	Labor	497	3.62	1.948	.087	3.45	3.79	1	7
	Greens	194	3.27	1.929	.139	3.00	3.55	1	7
	Other	209	3.65	2.080	.144	3.37	3.93	1	7
	Total	1513	3.95	1.980	.051	3.85	4.05	1	7
Biomass	Liberal/National	613	4.58	1.145	.046	4.49	4.67	1	7
	Labor	497	4.52	1.200	.054	4.42	4.63	1	7
	Greens	194	4.46	1.209	.087	4.29	4.64	1	7
	Other	209	4.14	1.224	.085	3.98	4.31	1	7
	Total	1513	4.49	1.190	.031	4.43	4.55	1	7

Table 87. Agreement with potential future energy sources by political party preference – ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Hydrogen	Between Groups	49.590	3	16.530	12.693	.000
	Within Groups	1965.109	1509	1.302		
	Total	2014.699	1512			
Coal	Between Groups	523.873	3	174.624	55.782	.000
	Within Groups	4723.863	1509	3.130		
	Total	5247.736	1512			
Gas	Between Groups	295.490	3	98.497	44.829	.000
	Within Groups	3315.509	1509	2.197		
	Total	3610.999	1512			
Gas or coal with carbon capture and storage	Between Groups	257.544	3	85.848	33.860	.000
	Within Groups	3825.937	1509	2.535		
	Total	4083.482	1512			
Wind	Between Groups	121.305	3	40.435	25.040	.000
	Within Groups	2436.717	1509	1.615		
	Total	2558.021	1512			
Solar PV	Between Groups	60.952	3	20.317	14.033	.000
	Within Groups	2184.721	1509	1.448		
	Total	2245.673	1512			
Oil (e.g. diesel/petrol for transport)	Between Groups	328.462	3	109.487	38.914	.000
	Within Groups	4245.630	1509	2.814		
	Total	4574.091	1512			
Nuclear (for power)	Between Groups	367.481	3	122.494	33.248	.000
	Within Groups	5559.600	1509	3.684		
	Total	5927.081	1512			
Biomass	Between Groups	31.106	3	10.369	7.412	.000
	Within Groups	2110.893	1509	1.399		
	Total	2141.999	1512			

Table 88. Agreement with potential future energy sources by political party preference (Post Hoc Test) – Tukey HSD

Dependent Variable	(I) If there would be federal elections on next Sunday, which party would you vote for	(J) If there would be federal elections on next Sunday, which party would you vote for	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Hydrogen	Liberal/National	Labor	-.143	.069	.162	-.32	.03
		Greens	.015	.094	.999	-.23	.26
		Other	.436*	.091	.000	.20	.67
	Labor	Liberal/National	.143	.069	.162	-.03	.32
		Greens	.158	.097	.361	-.09	.41
		Other	.579*	.094	.000	.34	.82
	Greens	Liberal/National	-.015	.094	.999	-.26	.23
		Labor	-.158	.097	.361	-.41	.09
		Other	.421*	.114	.001	.13	.71
	Other	Liberal/National	-.436*	.091	.000	-.67	-.20
		Labor	-.579*	.094	.000	-.82	-.34
		Greens	-.421*	.114	.001	-.71	-.13
Coal	Liberal/National	Labor	1.002*	.107	.000	.73	1.28
		Greens	1.670*	.146	.000	1.30	2.05
		Other	.526*	.142	.001	.16	.89
	Labor	Liberal/National	-1.002*	.107	.000	-1.28	-.73
		Greens	.669*	.150	.000	.28	1.05
		Other	-.476*	.146	.006	-.85	-.10
	Greens	Liberal/National	-1.670*	.146	.000	-2.05	-1.30
		Labor	-.669*	.150	.000	-1.05	-.28
		Other	-1.144*	.176	.000	-1.60	-.69
	Other	Liberal/National	-.526*	.142	.001	-.89	-.16
		Labor	.476*	.146	.006	.10	.85
		Greens	1.144*	.176	.000	.69	1.60
Gas	Liberal/National	Labor	.616*	.089	.000	.39	.85
		Greens	1.343*	.122	.000	1.03	1.66
		Other	.571*	.119	.000	.27	.88
	Labor	Liberal/National	-.616*	.089	.000	-.85	-.39
		Greens	.727*	.125	.000	.40	1.05
		Other	-.045	.122	.983	-.36	.27
	Greens	Liberal/National	-1.343*	.122	.000	-1.66	-1.03
		Labor	-.727*	.125	.000	-1.05	-.40
		Other	-.772*	.148	.000	-1.15	-.39
	Other	Liberal/National	-.571*	.119	.000	-.88	-.27
		Labor	.045	.122	.983	-.27	.36
		Greens	.772*	.148	.000	.39	1.15
Gas or coal with carbon capture and storage	Liberal/National	Labor	.574*	.096	.000	.33	.82
		Greens	1.217*	.131	.000	.88	1.55
		Other	.687*	.128	.000	.36	1.02
	Labor	Liberal/National	-.574*	.096	.000	-.82	-.33
		Greens	.643*	.135	.000	.30	.99
		Other	.113	.131	.825	-.22	.45
	Greens	Liberal/National	-1.217*	.131	.000	-1.55	-.88
		Labor	-.643*	.135	.000	-.99	-.30
		Other	-.530*	.159	.005	-.94	-.12
	Other	Liberal/National	-.687*	.128	.000	-1.02	-.36

Dependent Variable	(I) If there would be federal elections on next Sunday, which party would you vote for	(J) If there would be federal elections on next Sunday, which party would you vote for	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
		Labor	-.113	.131	.825	-.45	.22
		Greens	.530*	.159	.005	.12	.94
Wind	Liberal/National	Labor	-.425*	.077	.000	-.62	-.23
		Greens	-.649*	.105	.000	-.92	-.38
		Other	.195	.102	.224	-.07	.46
	Labor	Liberal/National	.425*	.077	.000	.23	.62
		Greens	-.224	.108	.159	-.50	.05
		Other	.619*	.105	.000	.35	.89
	Greens	Liberal/National	.649*	.105	.000	.38	.92
		Labor	.224	.108	.159	-.05	.50
		Other	.844*	.127	.000	.52	1.17
	Other	Liberal/National	-.195	.102	.224	-.46	.07
		Labor	-.619*	.105	.000	-.89	-.35
		Greens	-.844*	.127	.000	-1.17	-.52
Solar PV	Liberal/National	Labor	-.312*	.073	.000	-.50	-.13
		Greens	-.423*	.099	.000	-.68	-.17
		Other	.159	.096	.353	-.09	.41
	Labor	Liberal/National	.312*	.073	.000	.13	.50
		Greens	-.111	.102	.697	-.37	.15
		Other	.471*	.099	.000	.22	.73
	Greens	Liberal/National	.423*	.099	.000	.17	.68
		Labor	.111	.102	.697	-.15	.37
		Other	.582*	.120	.000	.27	.89
	Other	Liberal/National	-.159	.096	.353	-.41	.09
		Labor	-.471*	.099	.000	-.73	-.22
		Greens	-.582*	.120	.000	-.89	-.27
Oil (e.g. diesel/petrol for transport)	Liberal/National	Labor	.672*	.101	.000	.41	.93
		Greens	1.413*	.138	.000	1.06	1.77
		Other	.489*	.134	.002	.14	.83
	Labor	Liberal/National	-.672*	.101	.000	-.93	-.41
		Greens	.741*	.142	.000	.38	1.11
		Other	-.183	.138	.548	-.54	.17
	Greens	Liberal/National	-1.413*	.138	.000	-1.77	-1.06
		Labor	-.741*	.142	.000	-1.11	-.38
		Other	-.924*	.167	.000	-1.35	-.49
	Other	Liberal/National	-.489*	.134	.002	-.83	-.14
		Labor	.183	.138	.548	-.17	.54
		Greens	.924*	.167	.000	.49	1.35
Nuclear (for power)	Liberal/National	Labor	.908*	.116	.000	.61	1.21
		Greens	1.257*	.158	.000	.85	1.66
		Other	.879*	.154	.000	.48	1.27
	Labor	Liberal/National	-.908*	.116	.000	-1.21	-.61
		Greens	.349	.162	.140	-.07	.77
		Other	-.029	.158	.998	-.44	.38
	Greens	Liberal/National	-1.257*	.158	.000	-1.66	-.85
		Labor	-.349	.162	.140	-.77	.07
		Other	-.378	.191	.199	-.87	.11
	Other	Liberal/National	-.879*	.154	.000	-1.27	-.48

Dependent Variable	(I) If there would be federal elections on next Sunday, which party would you vote for	(J) If there would be federal elections on next Sunday, which party would you vote for	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
		Labor	.029	.158	.998	-.38	.44
		Greens	.378	.191	.199	-.11	.87
Biomass	Liberal/National	Labor	.063	.071	.815	-.12	.25
		Greens	.120	.097	.606	-.13	.37
		Other	.440*	.095	.000	.20	.68
	Labor	Liberal/National	-.063	.071	.815	-.25	.12
		Greens	.057	.100	.941	-.20	.31
		Other	.378*	.098	.001	.13	.63
	Greens	Liberal/National	-.120	.097	.606	-.37	.13
		Labor	-.057	.100	.941	-.31	.20
		Other	.320*	.118	.034	.02	.62
	Other	Liberal/National	-.440*	.095	.000	-.68	-.20
		Labor	-.378*	.098	.001	-.63	-.13
		Greens	-.320*	.118	.034	-.62	-.02

*. The mean difference is significant at the 0.05 level.

F. EXPORT & FUTURE ENERGY CONSIDERATIONS

Support for hydrogen export and facilities

Table 89. Support for hydrogen export and facilities by political party preferences – Descriptives

		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
						Lower Bound	Upper Bound		
SupportH2Export	Liberal/National	613	5.69	1.496	.060	5.57	5.80	1	7
	Labor	497	5.55	1.621	.073	5.41	5.70	1	7
	Greens	194	5.37	1.708	.123	5.12	5.61	1	7
	Other	209	5.27	1.598	.111	5.05	5.49	1	7
	Total	1513	5.54	1.586	.041	5.46	5.62	1	7
SupportH2ExportFacility_	Liberal/National	613	4.64	1.712	.069	4.51	4.78	1	7
	Labor	497	4.68	1.683	.075	4.53	4.83	1	7
	Greens	194	4.55	1.679	.121	4.31	4.78	1	7
	Other	209	4.06	1.768	.122	3.82	4.30	1	7
	Total	1513	4.56	1.716	.044	4.48	4.65	1	7

Table 90. Support for hydrogen export and facilities by political party preferences – ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
SupportH2Export	Between Groups	34.332	3	11.444	4.584	.003
	Within Groups	3767.083	1509	2.496		
	Total	3801.414	1512			
SupportH2ExportFacility	Between Groups	62.947	3	20.982	7.210	.000
	Within Groups	4391.525	1509	2.910		
	Total	4454.472	1512			

Table 91. Support for hydrogen export and facilities by political party preferences – Multiple comparisons (Tukey HSD)

Dependent Variable	(I) If there would be federal elections on next Sunday, which party would you vote for (RECODED)	(J) If there would be federal elections on next Sunday, which party would you vote for (RECODED)	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
SupportH2Export	Liberal/National	Labor	.132	.095	.511	-.11	.38
		Greens	.319	.130	.068	-.02	.65
		Other	.417*	.127	.006	.09	.74
	Labor	Liberal/National	-.132	.095	.511	-.38	.11
		Greens	.187	.134	.499	-.16	.53
		Other	.285	.130	.126	-.05	.62
	Greens	Liberal/National	-.319	.130	.068	-.65	.02
		Labor	-.187	.134	.499	-.53	.16
		Other	.098	.158	.925	-.31	.50
	Other	Liberal/National	-.417*	.127	.006	-.74	-.09
		Labor	-.285	.130	.126	-.62	.05
		Greens	-.098	.158	.925	-.50	.31
SupportH2ExportFacility	Liberal/National	Labor	-.035	.103	.986	-.30	.23
		Greens	.096	.141	.903	-.27	.46
		Other	.581*	.137	.000	.23	.93
	Labor	Liberal/National	.035	.103	.986	-.23	.30
		Greens	.132	.144	.799	-.24	.50
		Other	.616*	.141	.000	.25	.98
	Greens	Liberal/National	-.096	.141	.903	-.46	.27
		Labor	-.132	.144	.799	-.50	.24
		Other	.484*	.170	.023	.05	.92
	Other	Liberal/National	-.581*	.137	.000	-.93	-.23
		Labor	-.616*	.141	.000	-.98	-.25
		Greens	-.484*	.170	.023	-.92	-.05

*. The mean difference is significant at the 0.05 level.

Domestic use considerations

Table 92. Willingness to use hydrogen for domestic applications by gender – Group statistics

	Gender (binary)	N	Mean	Std. Deviation	Std. Error Mean
Space heating	Male	726	5.4959	1.48440	.05509
	Female	774	5.4005	1.44938	.05210
Hot water	Male	726	5.7383	1.44998	.05381
	Female	774	5.6835	1.39090	.04999
Cooking	Male	726	5.6240	1.46044	.05420
	Female	774	5.5116	1.48184	.05326
Electricity generation	Male	726	5.6212	1.45594	.05404
	Female	774	5.4444	1.41746	.05095
Gas blending	Male	726	5.4752	1.41473	.05251
	Female	774	5.2713	1.50679	.05416
FCEV	Male	726	5.4807	1.55684	.05778
	Female	774	5.1990	1.58639	.05702

Table 93. Willingness to use hydrogen for domestic applications by gender - Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Space heating	Equal variances assumed	.524	.469	1.259	1498	.208	.09535	.07576	-.05327	.24397
	Equal variances not assumed			1.258	1486.511	.209	.09535	.07582	-.05338	.24408
Hot water	Equal variances assumed	.811	.368	.747	1498	.455	.05483	.07336	-.08906	.19872
	Equal variances not assumed			.746	1481.487	.456	.05483	.07345	-.08925	.19891
Cooking	Equal variances assumed	.000	.996	1.478	1498	.140	.11234	.07603	-.03679	.26147
	Equal variances not assumed			1.478	1494.334	.140	.11234	.07599	-.03672	.26140
Electricity generation	Equal variances assumed	.277	.598	2.382	1498	.017	.17677	.07420	.03121	.32232
	Equal variances not assumed			2.380	1485.746	.017	.17677	.07427	.03109	.32245
Gas blending	Equal variances assumed	1.501	.221	2.697	1498	.007	.20389	.07559	.05562	.35215
	Equal variances not assumed			2.703	1497.998	.007	.20389	.07543	.05592	.35185

FCEV	Equal variances assumed	.107	.744	3.469	1498	.001	.28175	.08123	.12242	.44108
	Equal variances not assumed			3.471	1494.936	.001	.28175	.08118	.12251	.44099

Figure 23. Gender differences in willingness to use hydrogen in domestic applications

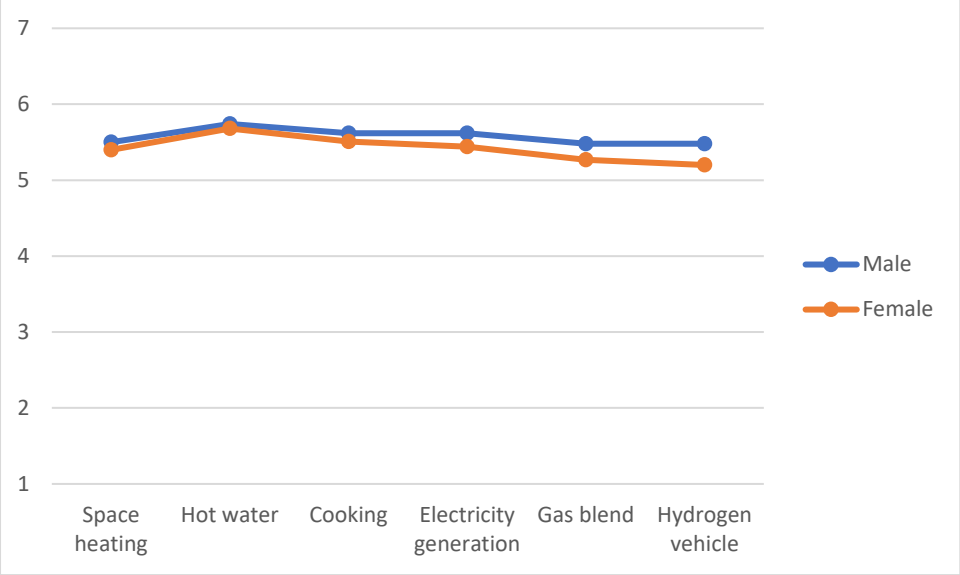
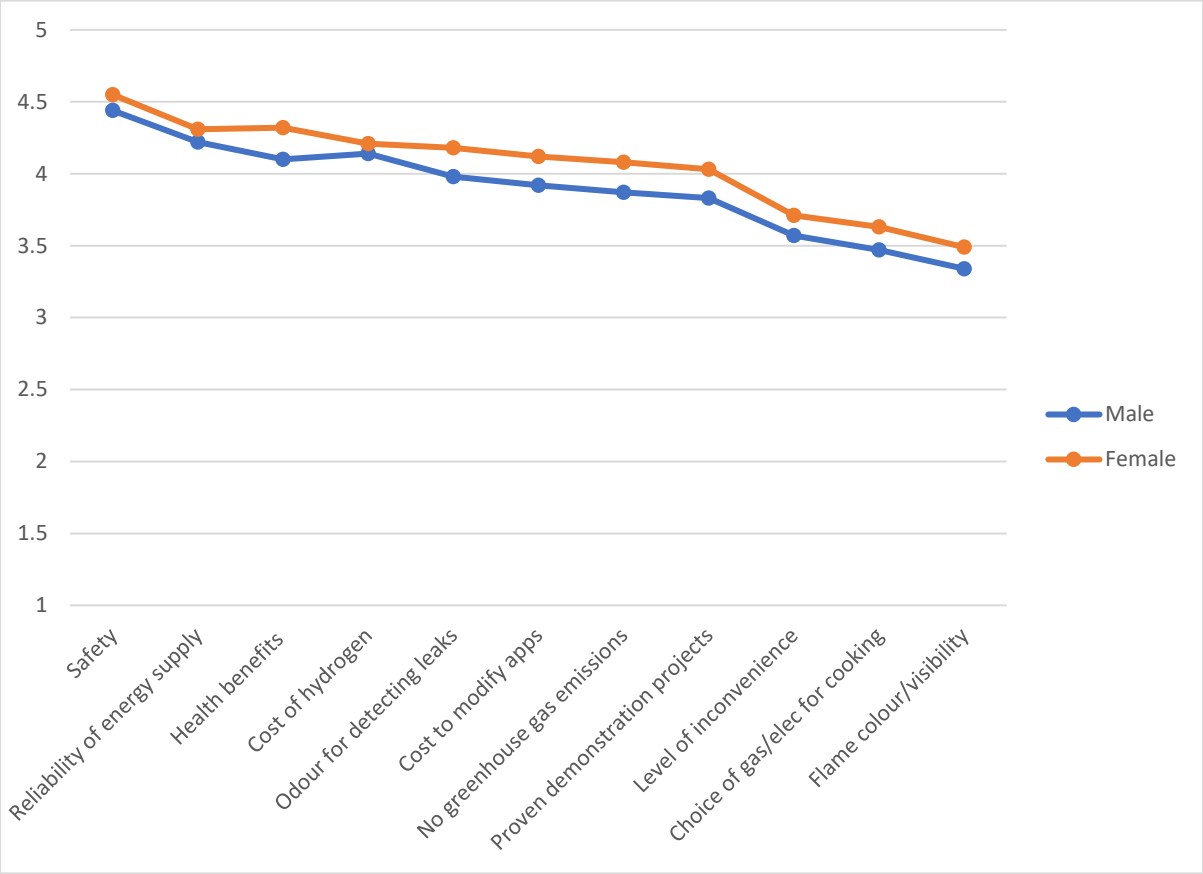


Figure 24. Gender differences in importance of factors related to domestic use of hydrogen



G. TRUST IN ORGANISATIONS

Respondents were asked the extent to which they thought particular organisations and groups would act in the best interests of consumers if a hydrogen economy was developed in Australia.

Table 94. Trust in organisations

If a hydrogen economy was to be developed in Australia, to what extent do you agree or disagree that the following groups would act in the best interest of the consumer?	Mean[a]	SD
CSIRO	5.43	1.33
Universities	5.24	1.32
Environmental Non-Government Organisations (ENGOs)	5.18	1.42
State government	4.94	1.51
Federal government	4.89	1.64
Local government	4.84	1.47
Car/appliance manufacturers	4.50	1.50
Electricity generation companies	4.35	1.65
Media	4.33	1.54
Fuel/gas supply companies	4.08	1.76

[a]Measured on a 7-point rating scale, where 1 = strongly disagree, 4 = neither agree nor disagree, 7 = strongly agree); *n* = 3,020.

Appendix 2. National Survey

SCREENING QUESTIONS

In what year were you born?

What is your gender?

- Male
- Female
- Transgender Female
- Transgender Male
- Gender Variant/Non-Conforming
- Not listed
- Prefer not to answer

What is the postcode of your home address?

- I do not wish to answer

and your suburb?

[Select Suburb from dropdown list of Australian suburbs matched to postcode]

[*if no* match] We couldn't match your Postcode to a suburb.

Is [Script] your correct Postcode?

- Yes
- No

[*if* No] What is the name of your suburb?

State

[*Autocoded*]

NSW
VIC
QLD
SA
WA
TAS
NT
ACT
Other

PARTICIPANT INFORMATION SHEET

Thank-you. You have qualified to complete the survey.

Research title: Investigating public attitudes towards and perceptions of hydrogen and future fuels in Australia

Project team: *Professor Peta Ashworth, Dr Katherine Witt, Dr. Belinda Wade, Dr Svetla Petrova, Dr Victoria Martin*
1. School of Chemical Engineering, The University of Queensland, Brisbane, Australia
2. Centre for Natural Gas, The University of Queensland, Brisbane, Australia
3. School of Business, The University of Queensland, Brisbane Australia

About this survey
This survey aims to investigate public attitudes towards and perceptions of hydrogen and future fuels among the Australian adult population. The study is being conducted by a team of researchers from the University of Queensland, led by Professor Peta Ashworth at the School of Chemical Engineering. The survey is funded by the Future Fuels Cooperative Research Centre (FFCRC) as part of the project ***Enhancing acceptance and a social licence to operate of future fuel infrastructure through community engagement and deliberative processes (RP2.1-02)***, which aims to understand current knowledge, attitudes and responses towards the development of a hydrogen industry in Australia. The FFCRC focuses on the pivotal role that new fuels and the existing gas infrastructure will have to play in a low carbon economy.
It is anticipated that the results of this research project will be published and/or presented in a variety of forms. Findings from this survey will be used to prepare research reports and other relevant academic publications and might be further incorporated in comparative analysis along with data and information collected from other studies conducted within the scope of the larger project '*Enhancing acceptance and a social licence to operate of future fuel infrastructure through community engagement and deliberative processes'*.
The information that you provide during the survey will be anonymous. The results from this survey will be presented as general conclusions only.

What is involved?
You are invited to respond to this online survey, which will take approximately 20 minutes of your time. We are keen to access the views of a range of Australians and you do not have to be an expert on the subject to participate.

Do I have to be a part of this program?
Please note that participation in this survey is entirely voluntary and you are free to withdraw at any time without prejudice or penalty. Your consent to participate in the survey will be obtained if you choose to proceed.

If you decide to take part and later change your mind, you are free to stop at any time, and you would not need to give any explanation for your decision to stop participating. If you choose to stop participating, your data will not be used in the research. Once you have completed the survey you won't be able to change your answers.

How can I find out more about the study?
If you would like more information about this study please contact the project leader Peta Ashworth by phone (+61 7 3346 3883) or e-mail (p.ashworth@uq.edu.au).

Has this project received ethical clearance?
This study adheres to the Guidelines of the ethical review process of The University of Queensland and the National Statement on Ethical Conduct in Human Research and has been approved by the UQ Human Research Ethics Committee (Project No. 2020002474). If you have any ethical concerns related to this study, you may contact the UQ Ethics Coordinator on +61 7 3365 3924.
Your contribution to this research project would be greatly appreciated. Thank you in advance for your consideration and support.

Consent

- Yes, I have reviewed the information above, and I agree to participate in this online survey
- No, sorry I do not wish to participate in this online survey

PERCEPTIONS, KNOWLEDGE AND AWARENESS

Perceptions, knowledge & awareness of hydrogen

When you hear the word hydrogen what are the first things that come to mind?

The following are some general questions about hydrogen properties.
Please do not guess. It is important we understand how much people know about hydrogen.

	Yes	No	I do not know
Is hydrogen heavier than air at room temperature?	❍	❍	❍
Is hydrogen available naturally in its pure form?	❍	❍	❍
Does hydrogen smell?	❍	❍	❍
Is hydrogen flammable in air?	❍	❍	❍
Can hydrogen be stored as a liquid?	❍	❍	❍

How much do you know about the following?

	I have never heard of it	I have heard of it	I know about it and could describe it to a friend
How hydrogen is produced	❍	❍	❍
The use of hydrogen fuel cells in vehicles	❍	❍	❍
The use of hydrogen fuel cells in homes	❍	❍	❍
Hydrogen as an energy storage medium for electricity	❍	❍	❍
Hydrogen refuelling stations	❍	❍	❍
Burning hydrogen as a replacement for natural gas	❍	❍	❍

There has been discussion about using hydrogen in Australia recently. Please respond to the following statements.

	Yes	No	Unsure
I have heard about a project blending natural gas and hydrogen for domestic use	m	m	m
I have heard about a hydrogen production project in Australia	m	m	m
I have heard about hydrogen in the media	m	m	m
I have heard about the National Hydrogen Strategy	m	m	m

Support for hydrogen

Overall, how do you feel about hydrogen as a possible solution for energy and environmental challenges?

- Very supportive
- Supportive
- Slightly supportive
- Neither supportive nor unsupportive
- Slightly unsupportive
- Unsupportive
- Very unsupportive

[If *Neither supportive nor unsupportive* is selected:]

What is the main reason you selected *Neither supportive nor unsupportive* for hydrogen as a possible solution for energy and environmental challenges?

- I did not understand the question
- I do not have any feelings either way (positive or negative)
- I have no opinion on this issue
- I don't care
- I do not know enough about hydrogen to decide
- There are pros and cons of hydrogen, which makes my support neutral
- Other reason (please specify):

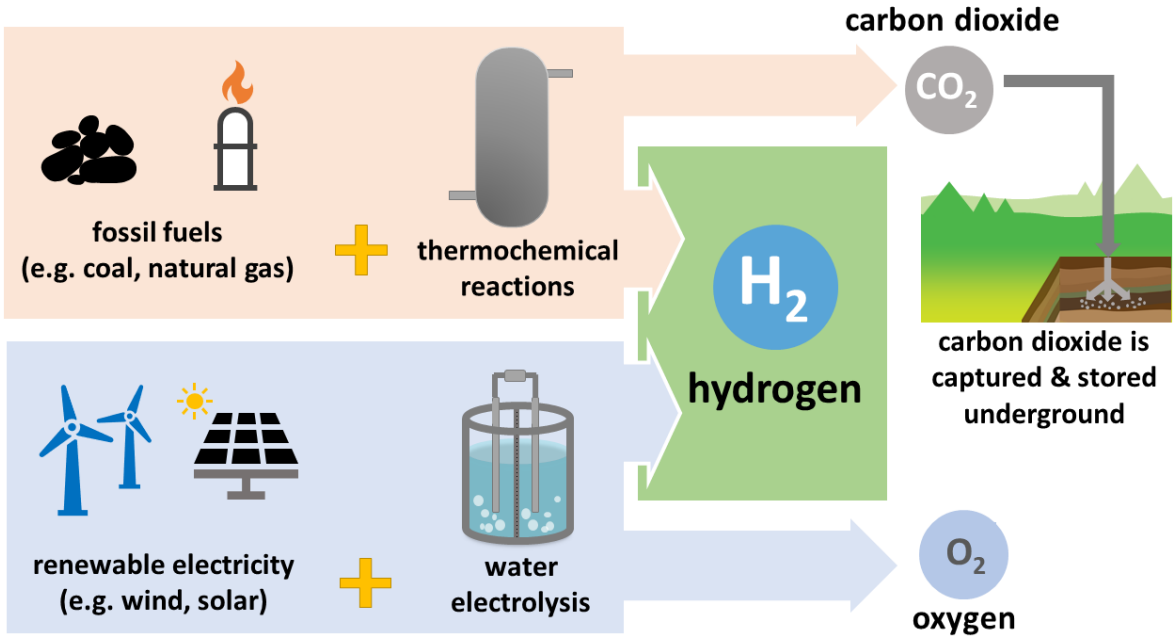
BACKGROUND INFORMATION ABOUT HYDROGEN

This video introduces you to some of the concepts around hydrogen energy.
Please watch carefully – you will be asked a question about the video content. **Incorrect answers will terminate this survey**.
Please note: the next button will appear after the video has finished.
[https://youtu.be/fFGT2z82tOM ARENA's video: "What is renewable 'green' hydrogen gas?"]

Which of the following was pictured in the video? [*Attention check question*]

- Ship
- Bicycle
- Giraffe
- Aeroplane

HYDROGEN PRODUCTION



As you heard in the video, hydrogen can be produced from **electrolysis** of **water** using **renewable energy sources**. Electrolysis uses **electricity** to **split water** molecules into **hydrogen** and **oxygen** and produces no greenhouse gas emissions. Hydrogen can also be made from **fossil fuels** (coal or gas), which undergo **thermochemical reactions** and produce **hydrogen** and **carbon dioxide**. When combined with **carbon capture and storage** (CCS) technology, which involves capturing carbon dioxide and storing it deep underground, up to 93% of greenhouse gas emissions can be prevented from being released to the atmosphere.

HYDROGEN PRODUCTION PREFERENCES

To what extent do you agree or disagree with the following statements about hydrogen production for energy?

	Strongly disagree	Disagree	Slightly disagree	Neither agree nor disagree	Slightly agree	Agree	Strongly agree
Hydrogen should be used increasingly for energy supply in Australia	❍	❍	❍	❍	❍	❍	❍
Hydrogen should be produced using renewable energy and electrolysis only.	❍	❍	❍	❍	❍	❍	❍
Hydrogen should be produced using fossil fuels with carbon capture and storage as an intermediate step while transitioning to renewables	❍	❍	❍	❍	❍	❍	❍
Hydrogen should be produced using fossil fuels with carbon capture and storage indefinitely	❍	❍	❍	❍	❍	❍	❍
The use of hydrogen contributes to climate protection	❍	❍	❍	❍	❍	❍	❍
Using hydrogen will reduce greenhouse gas emissions	❍	❍	❍	❍	❍	❍	❍

STREAM A QUESTIONS (FUTURE ENERGY & EXPORT)

Future energy source preferences

How strongly do you agree or disagree with the use of the following energy sources and related technologies as potential ways of generating Australia's future energy needs?

	Strongly disagree	Disagree	Slightly disagree	Neither agree nor disagree	Slightly agree	Agree	Strongly agree
Hydrogen	❍	❍	❍	❍	❍	❍	❍
Coal	❍	❍	❍	❍	❍	❍	❍
Gas	❍	❍	❍	❍	❍	❍	❍
Gas or coal with carbon capture and storage	❍	❍	❍	❍	❍	❍	❍
Wind	❍	❍	❍	❍	❍	❍	❍
Solar PV	❍	❍	❍	❍	❍	❍	❍
Oil (e.g. diesel/petrol for transport)	❍	❍	❍	❍	❍	❍	❍
Nuclear (for power)	❍	❍	❍	❍	❍	❍	❍
Biomass	❍	❍	❍	❍	❍	❍	❍

Export considerations

As you learned earlier in the ARENA video, Australia could become an exporter of hydrogen.

If Australia was to start exporting hydrogen how important are the following considerations to you?

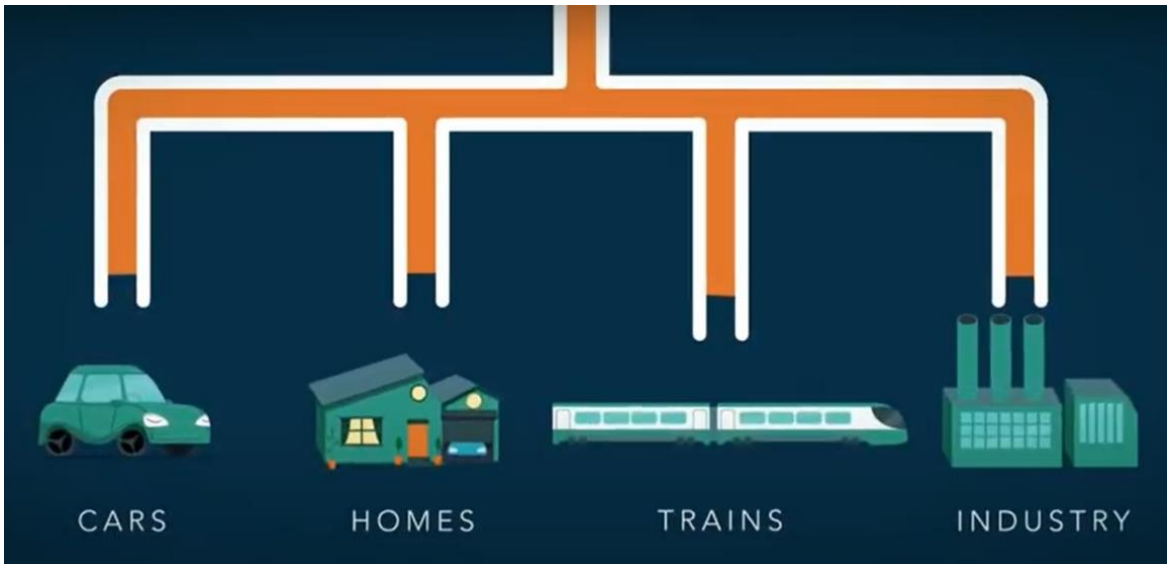
	Not at all important	Slightly important	Somewhat important	Very important	Extremely important
Increasing economic benefits to Australia	❍	❍	❍	❍	❍
Creating new job opportunities	❍	❍	❍	❍	❍
Retaining the rights of intellectual property for hydrogen production	❍	❍	❍	❍	❍
Ensuring Australia is an early mover in the export market	❍	❍	❍	❍	❍
Contributing to the world's emissions reductions	❍	❍	❍	❍	❍
Supporting the development of a local manufacturing industry	❍	❍	❍	❍	❍
Creating regional opportunities through the production of hydrogen	❍	❍	❍	❍	❍
Ensuring availability of a domestic hydrogen supply	❍	❍	❍	❍	❍
Minimising the overall use of water in hydrogen production	❍	❍	❍	❍	❍
Ensuring safety of the production process	❍	❍	❍	❍	❍
Minimising the environmental impacts of the production and transport process	❍	❍	❍	❍	❍
Ensuring safety in the way hydrogen is transported	❍	❍	❍	❍	❍

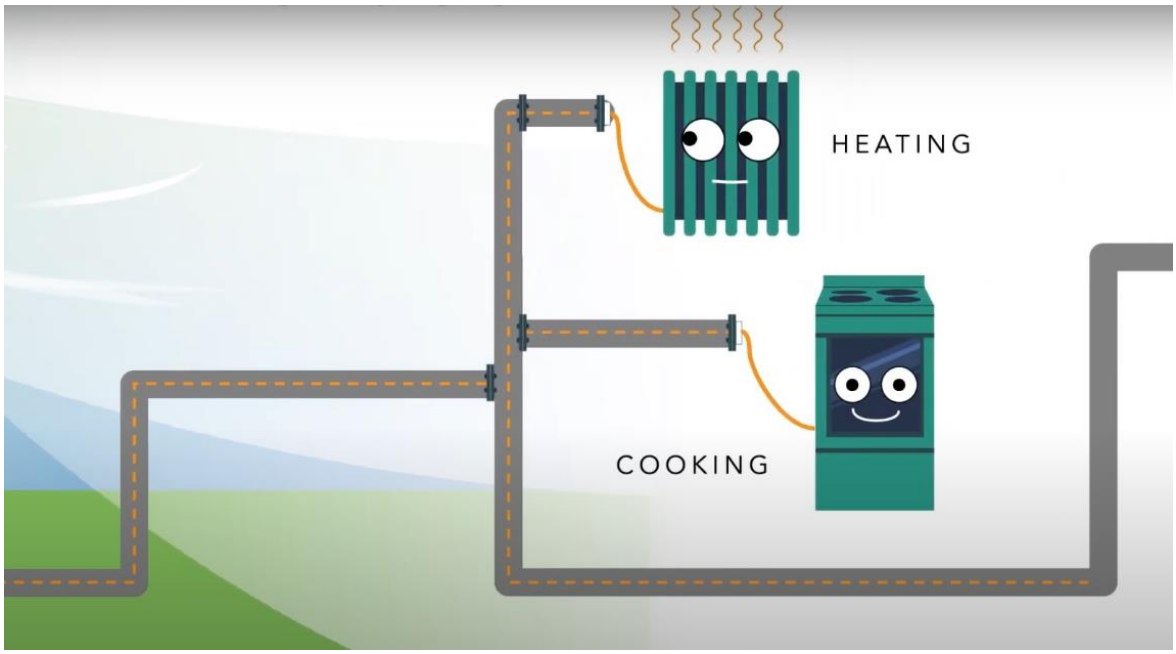
How much do you agree/disagree with the following statements?

	Strongly disagree	Disagree	Slightly disagree	Neither agree nor disagree	Slightly agree	Agree	Strongly agree
I support the idea of Australia exporting hydrogen	❍	❍	❍	❍	❍	❍	❍
I support the idea of a hydrogen export facility being built near me	❍	❍	❍	❍	❍	❍	❍

STREAM B QUESTIONS (DOMESTIC USE)

As you learned earlier in the ARENA video, hydrogen could be used in domestic applications.





Power for space heating (for heating rooms in a house), hot water and cooking can be provided by natural gas or electricity. As the proportion of renewable generation on the electricity grid is increased, emissions from this source decrease. It is also possible to decrease emissions from the gas grid, using hydrogen.
This could be achieved by piping low emissions hydrogen into the existing gas network (at around 10%), which does not require any changes to either the network or appliances in the home. Up to 20% hydrogen blends have already been trialled in projects in Europe, including France and Germany. The gas network could also be completely emissions free if all of the gas were to be replaced with hydrogen. This transition requires modification of the gas pipelines (although in some places existing networks are already suitable) and modification of household appliances. A 100% hydrogen conversion project is currently underway in Scotland.

Willingness to use hydrogen for domestic purposes

If hydrogen were available today, how willing would you be to use it in your home for the following uses?

	Very willing	Moderately willing	Slightly willing	Neither willing nor unwilling	Slightly unwilling	Moderately unwilling	Very unwilling
On-site electricity generation	❍	❍	❍	❍	❍	❍	❍
Cooking	❍	❍	❍	❍	❍	❍	❍
Using natural gas that contains some hydrogen (i.e. a blend)	❍	❍	❍	❍	❍	❍	❍
For driving hydrogen fuel cell electric vehicles	❍	❍	❍	❍	❍	❍	❍
Hot water heating	❍	❍	❍	❍	❍	❍	❍
Space heating	❍	❍	❍	❍	❍	❍	❍

How important are the following factors in determining your willingness to use hydrogen in your home?

	Not at all important	Slightly important	Somewhat important	Very important	Extremely important
The cost to modify appliances	❍	❍	❍	❍	❍
The cost of hydrogen to fuel your home	❍	❍	❍	❍	❍
The level of inconvenience to change over from current systems and appliances	❍	❍	❍	❍	❍
Safety	❍	❍	❍	❍	❍
Flame colour/visibility	❍	❍	❍	❍	❍
Odour for detecting leaks	❍	❍	❍	❍	❍
No greenhouse gas emissions	❍	❍	❍	❍	❍
Health benefits (no carbon monoxide emissions)	❍	❍	❍	❍	❍
Proven demonstration projects	❍	❍	❍	❍	❍
Being able to choose between gas or electricity for cooking	❍	❍	❍	❍	❍
Reliability of energy supply	❍	❍	❍	❍	❍

How much do you agree/disagree with the following statement?

I support the idea of a hydrogen facility being built near me to provide hydrogen for domestic use (i.e. households, transport, industry).

- Strongly agree
- Agree
- Slightly agree
- Neither agree nor disagree
- Slightly disagree
- Disagree
- Strongly disagree

Support for hydrogen

At this point, how do you feel about hydrogen as a possible solution for energy and environmental challenges?

- Very supportive
- Supportive
- Slightly supportive
- Neither supportive nor unsupportive
- Slightly unsupportive
- Unsupportive
- Very unsupportive

[If *Neither supportive nor unsupportive* is selected:]

What is the main reason you selected *Neither supportive nor unsupportive* for hydrogen as a possible solution for energy and environmental challenges?

- I did not understand the question
- I do not have any feelings either way (positive or negative)
- I have no opinion on this issue
- I don't care
- I do not know enough about hydrogen to decide
- There are pros and cons of hydrogen, which makes my support neutral
- Other reason (please specify):

COMMUNICATION MESSAGES

Please read the following extract from a newspaper article about hydrogen.

Stream 1: Environmental message (transition)

Reducing carbon emissions from the gas network by blending in 5-10% renewable gases (like hydrogen) is an important first step towards Australia's future energy mix.

Stream 2: Economic message (national)

Hydrogen will provide important economic benefits to Australia through export revenue, new industries, and jobs.

Stream 3: Environmental message (100% renewable energy)

Australia can use its abundant renewable energy resources to produce hydrogen, which will give us 100% emissions-free "green" energy.

Stream 4: Economic message (household)

The government is partnering with industry to develop tangible solutions to make hydrogen energy affordable for Australian households.

Stream 5: Control group (*no message; skip next question*)

After reading that statement, how do you feel about hydrogen as a possible solution for energy and environmental challenges?

- Very supportive
- Supportive
- Slightly supportive
- Neither supportive nor unsupportive
- Slightly unsupportive
- Unsupportive
- Very unsupportive

[If *Neither supportive nor unsupportive* is selected:]

What is the main reason you selected *Neither supportive nor unsupportive* for hydrogen as a possible solution for energy and environmental challenges?

- I did not understand the question
- I do not have any feelings either way (positive or negative)
- I have no opinion on this issue
- I don't care
- I do not know enough about hydrogen to decide
- There are pros and cons of hydrogen, which makes my support neutral
- Other reason (please specify):

ATTITUDE TOWARDS HYDROGEN

Overall, do you think using hydrogen for energy in Australia would be:

very useful +3 _ +2 _ +1 _ 0 _ -1 _ -2 _ -3 very useless
very worthwhile +3 _ +2 _ +1 _ 0 _ -1 _ -2 _ -3 very worthless
a very good thing +3 _ +2 _ +1 _ 0 _ -1 _ -2 _ -3 a very bad thing
very beneficial +3 _ +2 _ +1 _ 0 _ -1 _ -2 _ -3 very harmful

When you think about the use of hydrogen for energy in Australia, please indicate how it makes you feel:

very proud +3 _ +2 _ +1 _ 0 _ -1 _ -2 _ -3 very embarrassed
very happy +3 _ +2 _ +1 _ 0 _ -1 _ -2 _ -3 very sad
very inspired +3 _ +2 _ +1 _ 0 _ -1 _ -2 _ -3 very uninspired
very calm +3 _ +2 _ +1 _ 0 _ -1 _ -2 _ -3 very angry
very unconcerned +3 _ +2 _ +1 _ 0 _ -1 _ -2 _ -3 very worried

TRUST IN GROUPS

If a hydrogen economy was to be developed in Australia, to what extent do you agree or disagree that the following groups would act in the best interest of the consumer?

	Strongly disagree	Disagree	Slightly disagree	Neither agree nor disagree	Slightly agree	Agree	Strongly agree
Federal government	❍	❍	❍	❍	❍	❍	❍
State government	❍	❍	❍	❍	❍	❍	❍
Local government	❍	❍	❍	❍	❍	❍	❍
Electricity generation companies	❍	❍	❍	❍	❍	❍	❍
Fuel/gas supply companies	❍	❍	❍	❍	❍	❍	❍
Car/appliance manufacturers	❍	❍	❍	❍	❍	❍	❍
Universities	❍	❍	❍	❍	❍	❍	❍
CSIRO	❍	❍	❍	❍	❍	❍	❍
Media	❍	❍	❍	❍	❍	❍	❍
Environmental Non-Government Organisations (ENGOs)	❍	❍	❍	❍	❍	❍	❍

CLIMATE CHANGE BELIEFS

Do you believe climate change is happening now or will happen in the next 30 years?

- Yes, it is already happening.
- It will start happening within the next 30 years.
- No, it is not happening and won't.
- I do not know/ I am not sure

How convinced are you that climate change represents a real problem for Australia?

- Very convinced
- Convinced
- Slightly convinced
- Neither convinced nor unconvinced
- Slightly unconvinced
- Unconvinced
- Very unconvinced

ENVIRONMENTAL IDENTITY

Please indicate how much you agree or disagree with the following statements

	Strongly disagree	Disagree	Slightly disagree	Neither agree nor disagree	Slightly agree	Agree	Strongly agree
Being an environmentally friendly person is an important part of who I am	❍	❍	❍	❍	❍	❍	❍
I am the type of person who is environmentally friendly	❍	❍	❍	❍	❍	❍	❍
I see myself as an environmentally friendly person	❍	❍	❍	❍	❍	❍	❍

INNOVATOR CATEGORY

When thinking of your response to new technology, which best describes you?

- I closely follow new technology and am comfortable taking risks by being the first to purchase it.
- I see potential advantages in new technology and like to be among the first to use it.
- I am interested in new technology but prefer to wait for others to try it first.
- I am not thrilled by new technology but might purchase after it has been on the market for some time.
- I have little affinity with new technology and do not like to buy it unless necessary.

HOUSEHOLD CHARACTERISTICS

Is your home:

- Owned outright
- Owned with a mortgage
- Being purchased under a rent/buy scheme
- Being rented
- Being occupied rent free
- Being occupied under a life tenure scheme
- Other (please specify):

Which of the following best describes your dwelling?

Separate house

- Separate house

Semi-detached, row or terrace house, townhouse etc. with

- One storey
- Two or more storeys

Flat or apartment

- In a one or two storey block
- In a three storey block
- In a four or more storey block
- Attached to a house

Other dwelling

- Caravan
- Cabin, houseboat
- Improvised home, tent, sleepers out
- House or flat attached to a shop, office, etc.

Do you subscribe to renewable energy (sometimes called GreenPower) from your electricity provider?

- Yes, if yes what percentage comes from renewable sources? _____
- No
- Do not know

Do you use the following in your household?

	Yes	No
Electricity (grid connected)	❍	❍
Gas (mains)	❍	❍
Gas (bottled)	❍	❍
Solar hot water	❍	❍
Solar PV (e.g. rooftop panels)	❍	❍
Battery storage unit	❍	❍
Battery electric vehicle	❍	❍
Hybrid vehicle	❍	❍
Others (please specify) _____	❍	❍

What is the main reason you do not have a mains gas connection?

- My home has been designed to run on all-electric fixed appliances.
- Technical difficulties prevented the connection to the reticulated/mains gas network in
- my neighbourhood.
- I disconnected from the gas network because I switched my fixed appliances to all-electric.
- I asked to be disconnected from the reticulated gas network because I could not pay
- the bills.
- There is no reticulated/mains gas network in my neighbourhood/ building.
- It was too expensive to connect to the reticulated/mains gas network in my
- neighbourhood.
- My retailer disconnected me because I could not pay the bills.
- Other reason (please specify):

CURRENT USE AND ENERGY PREFERENCES

In your home, what type of energy do you use and would prefer to use for each of the following?

Hot water heating (incl. gas or electric boosting systems)
Note: select all that apply. If current and preferred energy sources are the same, please select the same in both sections.

Currently using	Prefer to use
○ Electricity (mains)	○ Electricity (mains)
○ Gas	○ Gas
○ Diesel	○ Diesel
○ Solar hot water system	○ Solar hot water system
○ Wood	○ Wood
○ Other (please specify)	○ Other (please specify)
○ Not applicable	○ Not applicable

Stovetop cooking
Note: select all that apply. If current and preferred energy sources are the same, please select the same in both sections.

Currently using	Prefer to use
○ Electricity (mains)	○ Electricity (mains)
○ Gas	○ Gas
○ Diesel	○ Diesel
○ Wood	○ Wood
○ Other (please specify)	○ Other (please specify)
○ Not applicable	○ Not applicable

Home space heating (i.e. heating rooms)
Note: select all that apply. If current and preferred energy sources are the same, please select the same in both sections.

Currently using	Prefer to use
○ Electricity (mains)	○ Electricity (mains)
○ Gas	○ Gas
○ Diesel	○ Diesel
○ Passive solar design (thermal mass)	○ Passive solar design (thermal mass)
○ Wood	○ Wood
○ Other (please specify)	○ Other (please specify)
○ Not applicable	○ Not applicable

CAPACITY TO PAY ENERGY BILLS

Which best describes your situation in relation to your electricity bill?

- Paying my electricity bill in full is never a problem for me
- I sometimes find it hard to pay my electricity bill when it becomes due
- I always struggle to pay my electricity bill when it becomes due
- My electricity bill is usually in credit after factoring in solar feed-in tariffs
- I pre-pay my electricity bill
- I do not pay for electricity in my house

Which best describes your situation in relation to your gas bill?

- Paying my gas bill in full is never a problem for me
- I sometimes find it hard to pay my gas bill when it becomes due
- I always struggle to pay my gas bill when it becomes due
- I pre-pay my gas bill
- I do not pay for gas in my house

DEMOGRAPHICS

Which of the following best describes who is living in your household?

- Group household
- Single person household
- One parent with child/children
- Couple with child/children
- Couple with no children
- Other family (e.g. extended family household)

Which best describes your highest level of education you have completed?

- Year 10 or below
- Year 11 or equivalent
- Year 12 or equivalent
- Trade certificate or Apprenticeship
- Certificate I or II
- Certificate III or IV
- Advanced Diploma / Diploma
- Bachelor or Honours degree
- Postgraduate degree (e.g. Masters, PhD)
- Other (please specify)

Which of the following best describes your occupational status?

- Student
- Household duties
- Employed – Part Time
- Employed – Full Time
- Unemployed not looking for work
- Unemployed looking for work
- Retired
- Pensioner
- Not able to work
- Other (please specify)

Which occupational sector do you work in (or worked in prior to ceasing work)?

- Agriculture, forestry, fishing
- Mining
- Manufacturing
- Electricity, gas, water, waste services
- Construction
- Wholesale trade
- Retail trade
- Accommodation and food services
- Transport, portal and warehousing
- Information, media and telecommunications
- Financial and Insurance services
- Rental, hiring and real estate services
- Professional, scientific, technical services
- Administrative and support workers
- Public administration and safety
- Education and training
- Health care and social assistance
- Arts and recreation services
- Other services
- Not applicable

In which country you were born?
Please Select

- Australia
- England
- India
- China (excluding Hong Kong and Taiwan)
- Italy
- Malaysia
- Germany
- South Korea
- Greece
- Hong Kong
- Lebanon
- Ireland
- Iraq
- Iran
- Indonesia
- Afghanistan
- Fiji
- Bangladesh
- Croatia
- Egypt
- Other

[*If other*] **Please specify which country you were born in?** _____

Are you of Aboriginal or Torres Strait Islander origin?

- No
- Yes, Aboriginal
- Yes, Torres Strait Islander

What is your household's total income per year (before tax)?

- Less than $30,000
- $30,000 - $59,999
- $60,000 - $89,999
- $90,000 - $119,999
- $120,000 - $149,999
- $150,000 - $179,000
- $180,000 - $199,999
- $200,000 - $219,999
- $220,000 - $239,999
- $240,000 - $269,999
- $270,000 - $299,999
- More than $300,000
- Other (please specify)

How would you describe your political orientation, if 1 is very “left” and 9 is very “right”?

very left 1_2_3_4_5_6_7_8_9 very right

If there would be federal elections on next Sunday, which party would you vote for:

- Liberal Party of Australia
- National Party of Australia
- Australian Labor Party
- Australian Greens
- Pauline Hanson’s One Nation
- Centre Alliance

- Palmer United Party
- Katter's Australia Party
- Other (please list)

If you have any other comments to make please feel free to share them below:

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Future Fuels CRC

Enabling the Decarbonisation of Australia's Energy Networks

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Australian Government
Department of Industry, Science, Energy and Resources

Business Cooperative Research Centres Program